



REVIEW  
OF  
FOREST ADMINISTRATION  
IN  
BRITISH INDIA

FOR THE YEAR  
1908-1909

WITH A QUINQUENNIAL SUMMARY

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# Review of Forest Administration in British India for the year 1908-09.

## INTRODUCTION.

### SUMMARY OF PROGRESS DURING THE FIVE YEARS 1904-05 TO 1908-09.

The following summary of the progress made in Forest Administration during the quinquennium ending with the year 1908-09 is, in conformity with the usual practice, prefixed to the Annual Review for the last year of the period.

2. The control of the Forest Branch of the General Administration remained in charge of the Department of Revenue and Agriculture. Adminis-  
tration  
control.

Mr. S. Eardley-Wilmot, who had been officiating as Inspector General of Forests since the 4th February 1903, was appointed substantively to that post on the 15th August 1904. He continued to hold it until the 9th November 1908, when he retired, except for three months in 1907 when he took privilege leave and Mr. J. H. Lace, Conservator of Forests, 1st grade, officiated, and for a short period early in 1908 when he was on deputation to England. During the latter period Mr. W. F. Perrée, Assistant Inspector General of Forests, carried on the current duties of the Inspector General. Mr. Eardley-Wilmot was made a C.I.E. in January 1908. On Mr. Eardley-Wilmot's retirement Mr. F. Beadon Bryant, Chief Conservator of Forests, Burma, became Inspector General of Forests. Mr. M. Hill, F.L.S., occupied the post of Assistant Inspector General of Forests until the 16th July 1907, Mr. W. F. Perrée from the 17th July 1907 to the 23rd March 1909, and Mr. S. Carr, F.C.H., from the 24th March 1909 to the end of the quinquennium.

3. No Forest legislation of importance has been found necessary during the period under review. Forest  
Legislation.

4. The operations of the Burma Kheddah Department having proved disastrous from a financial point of view, a prolonged discussion took place in 1908-09 regarding the desirability of abolishing the Kheddahs. It was eventually decided to continue the Department for a further period of three years to 30th September 1911, but that operations should be carried out on a reduced scale. The Chief Conservator of Forests, Burma, was placed in general control of the Department and other changes were made in its organisation, which will, it is hoped, lead to more successful results. Kheddahs.

5. The period under report has been marked both by a considerable increase in the number of officers in all branches of the Forest Service and by a general improvement in the conditions of service. The pay of the administrative and executive branches of the Imperial Forest Service has been improved, and for the latter a scale of pay based on length of service has been introduced in place of the system of promotion from grade to grade. A similar system for the Provincial Service has been under consideration by the Government of India. The most important appointment permanently created during the quinquennium was that of Chief Conservator of Forests, Burma, Organiza-  
tion.

Excluding appointments sanctioned for a limited period, of which that of Chief Conservator of Forests in the Central Provinces is the most notable, the posts added to the ultimate strength of the various Provincial cadres were as follows :—

	Imperial Service.	Provincial Service
Research Institute and College . . . . .	...	2
Burma . . . . .	{ 1 (Ch. Constr.)	28
	22	
Madras . . . . .	2	...
Bombay . . . . .	2	3
United Provinces . . . . .	5	...
Central Provinces . . . . .	2	11
Bengal . . . . .	...	1
Eastern Bengal and Assam . . . . .	5	10
Punjab . . . . .	1	...
Andamans . . . . .	...	3
	—	—
Total . . . . .	40	58
	—	—

These comprise 13 India list posts (including some additional posts added to the Research Institute and College staff) which, together with a leave and training reserve of three posts, have been allotted to the various Provincial cadres, and additions due to reorganizations of the cadres in the Provinces mentioned, except Madras and the Punjab for which provinces reorganizations of the Imperial and Provincial cadres have been under consideration by the Government of India. Considerable additions have also been made to the subordinate and clerical staffs in several provinces.

6. The area under the control of the Forest Department has increased from 232,701 square miles to 241,774 square miles, or from 24 per cent. to 24.5 per cent. of the total area of British India. These areas are classified as follows :—

	At commencement of the period.	At close of the period.
	Sq. miles.	Sq. miles.
Reserved and leased forests . . . . .	91,567	94,561
Protected forests . . . . .	9,865	8,835
Unclassified State forests . . . . .	131,269	138,378
	—	—
Total . . . . .	232,701	241,774
	—	—

7. Forest settlements have continued to receive attention, especially in Forest Settlement. Burma, and during the last five years 6,448 square miles of reserved and 291 square miles of protected forests have been brought under settlement. Owing, however, to corrections of area, disforestation, etc., the area finally settled at the close of 1908-09 amounted to 98,434 square miles only as compared with 96,466 at the end of 1903-04.

8. The total length of artificially marked boundaries at the close of Demarcation. 1908-09 amounted to 142,576 miles as compared with 121,501 miles at the commencement of the quinquennium. Progress in all provinces except Bombay has been good.

9. In 1907-08 an important change in the arrangements for forest Forest surveys was given effect to. The Forest Survey Branch was abolished and Surveys.

forest surveys have since been carried out by the topographical parties of the Survey of India, usually in the course of their ordinary programmes. The general scale of forest surveys was also reduced from 4" to a mile to 2" to a mile, though surveys on larger scales can still be arranged for when they are necessary. In such cases, however, and when surveys, not included in the topographical programmes are required, the cost is debited to the Forest Department, whereas the cost of surveys on the 2" scale, carried out in accordance with the sanctioned topographical programmes, is borne by the Survey of India.

During the last five years forest areas aggregating some 14,600 square miles have been surveyed, the total of such areas surveyed up to the end of 1908-09 being 74,045 square miles.

10. During the quinquennium Working-Plans (including revised plans) <sup>Working-Plans.</sup> were compiled for 13,510 square miles. The following are the areas under sanctioned Working-Plans at the beginning of 1904-05 and at the close of 1908-09.

	Beginning of 1904-05 sq. miles.	End of 1908-09 sq. miles.
Bengal . . . . .	24,407	34,652
Madras . . . . .	5,108	7,207
Bombay . . . . .	4,170	6,442
Total . . . . .	<u>33,685</u>	<u>48,301</u>

Corrections of areas for which Working-Plans have been prepared account for an apparent increase in excess of the area for which plans were compiled during the period under review. Greater progress would have been made in this direction had the staff of trained officers in several provinces been adequate.

11. The average annual expenditure on communications, buildings and other works amounted to Rs. 10,73,974 during the period under review as compared with Rs. 5,44,250 during the previous five years. The great increase is sufficient evidence of the fact that considerable attention has been devoted to opening up the forests and to providing the staff with rest-houses and quarters in most provinces. The expenditure in each of the years 1907-08 and 1908-09 exceeded 13½ lakhs. <sup>Communications and buildings.</sup>

12. The number of forest offences reported continues to increase. The average annual number during the quinquennium under review was 67,926 <sup>cases.</sup> as compared with 55,323 during the five years ending with 1903-04 and 40,520 during the period 1894-95 to 1898-99. Cases of injury to the forests by fire show an average annual increase of 22 cases only, which, in view of the increase in the area under fire-protection, may be regarded as satisfactory. Offences of unauthorized fellings and grazing increased by 17 per cent. and 35 per cent. respectively, and offences of a miscellaneous nature increased by 30 per cent.

13. During the period under review the average area under systematic fire-protection amounted to 43,221 square miles, the average of failure being 6 per cent. In the previous period the average area under protection was 35,236 square miles, while failures amounted to 8 per cent. The increases in the areas brought under protection occurred principally in the Central Provinces, East <sup>Fire-protection.</sup>



14. The regulation of grazing in forest areas is a question of the utmost importance, but, although much attention has been given to the subject in recent years, little progress has yet been made towards its solution. On the one hand, it is absolutely necessary to admit cattle to a large proportion of the forest area, while on the other it is generally impossible to satisfactorily regenerate areas heavily grazed over. During the period under review the average area annually open to cattle other than browsers increased by 19,623 square miles or 11 per cent. and that open to browsers by 29,316 square miles or 20 per cent., the average areas open each year being 197,977 square miles and 178,638 square miles respectively. During the same period the average forest area amounted to 237,262 square miles or 23,815 square miles (10 per cent.) more than during the previous quinquennium. There was no change in the proportion of the total forest area open to cattle (83 per cent.) but that open to browsers increased from 70 to 75 per cent. The average number of all animals admitted to graze increased from 12,387,037\* in the previous quinquennium to 14,018,458 in the period under review. Of the former number 4,610,897 and of the latter 4,570,517 were browsers, so that there was a decrease amounting to rather less than one per cent. in the number of animals of this class admitted to pasture. There was, however, an increase amounting to 21 per cent. in the number of cattle other than browsers for which grazing was provided, whereas the increase in the area open to such animals amounted to 11 per cent. only.

15. The following statement shows the average annual outturn of the forests for the two periods :—

		Timber and fuel.	Bamboos.	Minor produce. Value.
		C. ft.	No.	Rs.
1899-1900 to 1903-04	Bengal	173,687,000	175,712,000	23,54,000
	Madras	19,234,000	33,960,000	11,98,000
	Bombay	43,095,000	4,833,000	7,04,000
	Total	236,016,000	214,505,000	47,56,000
1904-05 to 1908-09	Bengal	171,907,000	147,652,000	37,69,000
	Madras	24,235,000	36,757,000	14,87,000
	Bombay	41,272,000	11,693,000	11,44,000
	Total	237,414,000	196,107,000	64,00,000

The average annual outturn of timber and fuel increased by less than 1 per cent. In Madras the increase was 26 per cent., but in the Bengal Presidency and Bombay decreases of 1 per cent. and 4 per cent. respectively occurred.

The average number of bamboos extracted annually decreased by 9 per cent. Madras and Bombay show increases of 8 per cent. and 142 per cent. respectively, while the Bengal Presidency shows a decrease of 16 per cent. The great increase in Bombay is probably due to the inclusion in the later returns of estimates of the number removed by right-holders, but even now no uniform system of preparing such returns obtains in Bombay.

The most marked feature of the quinquennium is the increase of 35 per cent. in the average value of the minor produce extracted annually. In the Bengal Presidency the increase amounted to 32 per cent., in Madras to 24 per cent. and in Bombay to 63 per cent.

\* Average of the 4 years ending with 1903-04, figures for 1899-1900 being incomplete.

16. The average annual financial results for the last two periods were as follows:— Financial results.

		Revenue.	Expenditure.	Surplus.
		₹	₹	₹
1899-1900 to 1903-04	{ Bengal . . .	1,46,00,000	75,94,000	70,06,000
	{ Madras . . .	24,91,000	17,33,000	7,58,000
	{ Bombay . . .	25,67,000	19,42,000	6,25,000
	Total	1,96,58,000	1,12,69,000	83,89,000
1904-05 to 1908-09	{ Bengal . . .	1,88,96,000	96,15,000	92,81,000
	{ Madras . . .	33,74,000	24,86,000	8,88,000
	{ Bombay . . .	34,32,000	20,04,000	14,28,000
	Total	2,57,02,000	1,41,05,000	1,15,97,000

The average gross revenue, expenditure and surplus all show a general increase, the increases in the total for all provinces being 31 per cent., 25 per cent. and 38 per cent., respectively. In the Bengal Presidency the average annual gross revenue increased by 29 per cent., the expenditure by 27 per cent. and the surplus by 32 per cent. In Madras the corresponding increases were 35 per cent., 43 per cent. and 17 per cent., while in Bombay they were 34 per cent., 3 per cent. and 128 per cent., respectively. The comparatively small increase in expenditure in Bombay is chiefly due to the fact that a reorganization of the subordinate service has been pending for many years but has not yet been sanctioned.

17. Great improvements have been made in the Forest School at Dehra Dun, which was raised to the status of a College in 1906. The vernacular course of instruction previously given was abolished and arrangements for the education of the Rangors' classes were at the same time revised. In 1907-08 a third year's course of training was introduced to qualify selected candidates for direct appointment to the Provincial Service. Experience of all these arrangements has shown them to be inadequate and steps are being taken for their improvement. Forest education.

As a consequence of the abolition of the vernacular course at Dehra Dun, the duty of training subordinate officers below the rank of Ranger devolved on Local Governments, and steps have been taken in most provinces to establish suitable institutions for the instruction of Deputy Rangors, Foresters and Guards.

In 1906-07 proposals were sanctioned for the reconstitution of the vernacular Forest School in Burma and for its transfer to Pyinmana. The new rules provide for an English course as well as a vernacular one, and a maximum number of 30 students will be admitted to the school each year.

The question of establishing a Forest College at Coimbatore, where Rangers for the Madras Presidency and the adjacent States can be trained, has been under consideration but no definite arrangements had been sanctioned at the close of 1908-09. Such a College is, however, urgently required to relieve the congestion at Dehra Dun where the number of students is much greater than the staff can deal with adequately.

18. Simultaneously with the constitution of the College at Dehra Dun, an Imperial Research Institute was founded as part of the same institution. A staff of experts, chiefly Forest officers, was appointed to carry out research in botany and

economics with special reference to forestry. Considerable progress has been made in many directions, but much of the time of the Research officers has had to be devoted to the education of the large classes of students at the College and research has suffered in consequence. Other defects in constitution have come to light as was only to be expected in an institution in its infancy, but it is hoped that these will be remedied at an early date, when more rapid progress will be possible.

A plan of a main Research Institute building was prepared by the Consulting Architect to the Government of India but has since been abandoned owing to the accommodation provided being considered insufficient and to the unsuitability of the site originally selected. Other arrangements for buildings were under consideration at the close of the quinquennium under review but some time must elapse before the institute can be regarded as complete. Any detailed account of the progress made would be beyond the scope of this review, but it may be stated that 36 publications prepared by the special Research officers were issued before, or were in the press at, the end of 1908-09.

## CHAPTER I.

### CONSTITUTION OF STATE FORESTS.

#### 1.—ALTERATION IN AREA.

[ *Vide* Appendices I and II.]

The total area of forest lands under the control of the Forest Department increased during the year under review by 3,965 square miles to a total of 241,774 square miles, or 24·5 per cent. of the area of British India. In addition some 12,193 square miles of forest lands are controlled by other departments.

2. The principal alterations in the area of each class of State forests were as follows:—

##### (i) *Reserved and Leased Forests.*

A total area of 1,175 square miles was added and 673 square miles were excluded, the net increase being 502 square miles. The most notable changes were the notification of 770 square miles of new reserves in Burma, of 47 square miles in the Punjab, of 97 square miles in Eastern Bengal and Assam, and of 149 square miles in Madras; the disforestation of 337 square miles in Eastern Bengal and Assam on account of the encroachments of temporary cultivators, disforestations aggregating 111 square miles in the Central Provinces to provide for the extension of agriculture and the transfer to the management of the Revenue Department of 93 square miles of reserves in Bombay.

##### (ii) *Unclassed State Forests and Public Forest Lands.*

There was a net increase of 3,481 square miles under these classes of forest. The principal additions were 4,000 square miles in the Chin Hills, Burma, for the control of which an establishment is now employed, and 496 square miles in Baluchistan, neither of these areas having been previously shown in the returns. On the other hand, 770 square miles in Burma and 149 square miles in Madras were transferred to reserved forests and 111 square miles in the Punjab were transferred to the control of the Civil Department.

3. The following statement shows the area of the different classes of forest under the control of the Forest Department at the close of the years 1907-08 and 1908-09:—

Class of forests.	1907-08.	1908-09.	Difference.
	Sq. miles.	Sq. miles.	Sq. miles.
Reserved forests . . . . .	93,316	93,818	+ 502
Leased „ . . . . .	743	743	...
Protected „ . . . . .	8,853	8,835	—18
Unclassed State forests and Public Forest lands . . . . .	134,897	138,378	+ 3,481
TOTAL	237,809	241,774	+ 3,965

## 2.—FOREST SETTLEMENTS.

[ *Vide Appendix III.* ]

4. The area finally settled was 1,230 square miles compared with 1,798 square miles in the previous year and 1,812 square miles in 1906-07. The area taken in hand was 824 square miles compared with 3,575 square miles in 1907-08. The total area undergoing settlement at the close of the year was 6,352 square miles compared with 6,902 square miles at the close of 1907-08. The approximate cost of settlement was Rs12,909 compared with Rs48,947 in the previous year. Burma, which is the only province in which extensive settlement operations are in progress, accounts for 892 square miles of reserves finally settled during the year, 777 square miles of the area taken in hand and 5,171 square miles of the area undergoing settlement at the close of the year.

## 3.—DEMARCATIION.

[ *Vide Appendix IV.* ]

5. Although the area of reserved and protected forests increased by 484 square miles, the total length of boundaries at the close of the year under review was 3,101 miles less than at the close of 1907-08, being 166,269 miles. The Punjab shows a decrease of 3,695 miles, chiefly owing to the omission from the return of 3,533 miles of the boundaries of undemarcated forests in Kangra on the ground that they are incapable of demarcation. Bombay also shows a decrease of 975 miles, which is not explained but which is probably due to the transfer of 93 square miles of reserves to the Revenue Department. In Burma there was a considerable increase due to new reservations but the changes in other provinces are of little importance. The total length of the actually demarcated boundaries rose from 141,227 miles to 142,576 miles; the length still remaining to be demarcated amounts to 6,117 miles (of which 4,992 miles are in Bombay) compared with 10,653 miles at the close of the previous year. Most of this decrease is, however, due to the alteration in the Punjab, return already referred to. There was little change in the length of boundaries not requiring demarcation. The length of new boundaries demarcated rose from 2,421 miles to 2,727 miles, of which 1,037 miles were in Burma and 970 miles in Bombay. It is satisfactory to note that somewhat better progress was made in Bombay and that in Burma, in spite of the fact that 777 square miles of new reserves were notified, the length of boundaries remaining undemarcated was reduced from 726 miles to 264 miles. The total expenditure on new work amounted to Rs46,362 and on repairs to Rs97,774, compared with Rs57,006 and Rs89,154 respectively in the previous year. The average cost for new work fell from Rs23.5 in 1907-08 to Rs17 in 1908-09; in both years repairs were carried out at an average cost of Rs1.6 per mile. The average cost per mile of new work varies greatly in the different provinces. Calculations based on the figures given in Appendix IV show it to have been Rs2.6 in Bengal, Rs18.6 in the United Provinces, Rs13.7 in Burma, Rs49.9 in Madras, and Rs6.6 in Bombay. In some of the other provinces similar averages would be misleading owing to the fact that improvements in existing boundaries already shown as demarcated have been treated as new work.

## 4.—FOREST SURVEYS.

[ *Vide Appendices V and VI.* ]

6. During the year forest survey operations were conducted by the various topographical parties, in almost every instance in the ordinary course of the

season's programme. The surveys were for the most part on the 2" scale, but a few small areas were done on the 1" scale, and boundary surveys on the 4" scale were carried on over a considerable area. The revision of a small area previously surveyed on the 4" scale by the Forest Survey Branch was also effected.

7. The following areas were topographically surveyed during the year:—

Presidency.	1"=1 Mile. Sq. miles.	2"=1 Mile. Sq. miles.	4"=1 Mile. Sq. miles.	Total. Sq. miles.	REMARKS.
Bengal . . .	29	924	531(a)	1,484	(a) Includes 461 linear miles.
Madras . . .	...	563	...	563	
Bombay . . .	...	394	205(b)	599	(b) Linear miles.
TOTAL .	29	1,881	736	2,646	

The entire cost of the above surveys was borne by the Survey of India with the exception of that of the Mosit reserve, the cost of which is debitable to the Forest Department.

8. The details of surveys carried out in the various provinces are given in the following paragraphs:—

*Central Provinces (Berar Circle).*—In the course of the 1" topographical survey of Berar, No. 2 Party surveyed on the 2" scale all the A and B class forests falling in the area under survey in the districts of Akola and Yeotmal, and their boundaries were traversed on the 4" scale. The area surveyed on the 2" scale amounted to about 160 square miles, and the boundary traversing to 461 linear miles.

*North-West Frontier Province.*—No. 12 Party, in the course of its ordinary operations, surveyed the Manakrai reserve, and parts of the Tanglai and Lachi Khan reserves in the Hazara division, on the 1" scale. The total area amounted to 8 square miles. In addition to this, 4" forest surveys previously done by the Forest Survey Branch, of a part of the Masar reserve, the Batrasi and Tandiani reserves, and parts of Dunga Gali and Samundar reserves, Hazara district, were revised on the same scale, new details inserted, all the roads classified and perennial water shown. The total area thus revised on the 4" scale amounted to 70 square miles.

*Punjab.*—Part of the Gainthal reserve, in Rawalpindi district, amounting to 0.8 square mile, was surveyed by No. 12 Party on the 1" scale.

*Burma (Northern Circle).*—Two parties surveyed forest areas in Burma in the course of their regular operations. No. 3 Party completed 39 square miles on the 2" scale in the Myittha and Lower Chindwin Forest divisions, and No. 10 Party surveyed 152 square miles on the same scale in the Bhamo, Mu and Upper Chindwin divisions. As these surveys were conducted in the course of the regular topographical survey, their cost will be borne by the Survey of India. As arranged last year, No. 10 Party surveyed the Mosit reserve in the Bhamo division, area 106 square miles, on the 2" scale, in advance of its programme. This being a special survey, its cost will be borne by the Forest Department.

*Eastern Bengal and Assam (Eastern Circle).*—Parts of the Sonai, Inner Line and Katakhal reserves, in the Cachar division, comprising an area of 367 square miles, were surveyed on the 2" scale by No. 20 Party. Owing to the difficult nature of the ground, the early rains and the presence of a man-eating tiger, the programme of the party was not completed. The work will be completed next season.

*Madras Presidency (Southern Circle).*—Forest Surveys on the 2" scale were carried on during the year by No. 19 Party in the following divisions: in South Malabar, aggregating 201 square miles; in the Nilgiris, 209 reserved forests of the total area of 357 square miles were surveyed; in North Coimbatore, the Akkur reserve, area 2 square miles, and in Central Coimbatore, the Nellimalai reserve, area 3 square miles, were surveyed. These two reserves have been afforested since the 4" survey was carried out. The total forest area

thus surveyed in the Madras Presidency is 563 square miles, and the whole cost is debitable to the Survey of India.

*Bombay Presidency (Central Circle).*—An area of about 394 square miles of forest, falling within Shirpur taluk of the Western Khandesh district and Chopda and Yaval taluks of the Eastern Khandesh district, was surveyed on the 2" scale by No. 17 Party. The boundaries of these areas, about 205 linear miles, were surveyed on the 4" scale. The area is a part of the Satpura reserves, and is a continuation of the work commenced in 1906.

*Coorg.*—In Coorg, an area of 56 square miles of forest was surveyed on the 2" scale. It is hoped that the Coorg survey will be completed in 1909-10.

3. The number of maps issued to Forest and other officials and to the public during the year was 7,689, of which 3,335 were coloured maps. The number issued last year was 11,177. The value of the maps issued was, however, considerably greater, the amount realised by the sale of maps being Rs. 3,312, as against Rs. 2,018 realised last year, and Rs. 1,750 in 1906-07. Of this amount, Rs. 2,244 was adjusted by book debit and Rs. 1,068 accrued from sales to private individuals and trading companies. Besides the Head-Quarters charges, a sum of Rs. 9,935 was debited to the Forest Department on account of mapping and publishing charges and the cost of survey of the Mosit reserve.

The following is a brief summary of the mapping executed during the year:—Of the standard sheets of Forest Surveys, 62 were published, 17 were in the press and 94 were in various stages of preparation. Of the working-plan and other special forest maps, 8 were published, 9 were in the press and 19 were in hand. Two general maps of India, on the 48-mile scale, were put in hand for the Inspector General of Forests' Quinquennial Report for 1904-09, and also six on the 96-mile scale, showing the distribution of the principal Indian trees. Provincial forest maps of Burma and the Central Provinces on the 32-mile and 16-mile scales respectively were published. A similar map of Bengal on the 32-mile scale was completed and sent to press, and one of the Punjab on the 16-mile scale was commenced. The drawing of the new district forest maps of the Madras Presidency, on the quarter-inch scale, which was commenced last year at the instance of the Conservators of the three Circles, has made good progress during the year. Arrangements are being made to publish these district maps in the first place as ordinary editions, omitting all special forest features. Blue impressions of 18 of the new 2-inch standard sheets have been received during the year for the insertion of additional forest details in order to publish them as special forest editions. Of these, two have been published and the remainder are in hand. Out of the 36 blue impressions of two-inch sheets received last year, 16 have been published and distributed, 6 returned to press for publication and the others are in various stages of progress. In future, the forest details are to be inserted on *black* impressions of the sheets, carefully printed on thick drawing paper, instead of on blue prints as heretofore. This method has the advantage of furnishing originals for photography complete in every respect, thus saving the trouble of making separate helio plates from the blue prints containing the forest information only, and of sur-printing from these plates upon previously printed copies of the public edition. During the year, 30,944 copies of forest maps were received from the Map Record and Issue Office, Calcutta, and other offices, for storage.

## CHAPTER II.

### MANAGEMENT OF STATE FORESTS.

#### 1.—REGULATION OF MANAGEMENT.

##### *Working-Plans.*

[*Vide* Appendices VII, VIII and IX.]

10. In the Bengal Presidency Working-Plans for areas amounting to 3,162 square miles were sanctioned during the year, including revised plans for 338 square miles. The most important additions to forests under regulated working were made in Burma and the Central Provinces, where 1,344 and 959 square miles respectively were brought under Working-Plans. Plans for 3,835 square miles were in course of compilation at the close of the year, of which 372 square miles represent revision of existing plans.

In the Madras Presidency Working-Plans for 285 square miles were sanctioned and plans for 3,851 square miles were under preparation.

In the Bombay Presidency plans for 344 square miles were sanctioned and plans for 579 square miles were in course of preparation.

11. The following figures show the total areas under Working-Plans at the close of the year :—

	At commencement of the year. Sq. miles.	Added during the year. Sq. miles.	Total. Sq. miles.
Bengal . . . . .	31,828*	2,824	34,652
Madras . . . . .	6,922*	285	7,207
Bombay . . . . .	6,098	344	6,442
<b>TOTAL IN 1908-09</b> . . . . .	<b>44,848*</b>	<b>3,453</b>	<b>48,301</b>
"    1907-08 . . . . .	<b>42,441</b>	<b>2,711</b>	<b>45,152</b>

At the close of the year 185,780 square miles remained without regular Working-Plans, the areas in the Bengal, Madras and Bombay Presidencies being 171,310, 8,512 and 5,958 square miles respectively. It may, however, be remarked that no Working-Plans will be required for some time to come for large areas, chiefly of unclassified state forests, included in the above figures.

#### 2.—COMMUNICATIONS AND BUILDINGS.

[*Vide* Appendix X.]

##### (a) *Roads and Bridges.*

12. Good progress in the construction and maintenance of communications was made, the total expenditure of the year being Rs.5,40,180 as compared with Rs.4,49,631 in the previous year and Rs.3,90,076 in 1906-07. Of the total amount expended Rs.3,23,560 was the cost of new work and Rs.2,16,620 that of repairs. In Bengal a reduction of some Rs.13,000 in the total expenditure is attributed partly to the roads made being less difficult to construct than in 1907-08, and partly to paucity of the staff rendering it impossible to fully carry out the construction programme. In Eastern Bengal and Assam an expenditure of some Rs.13,000 less is chiefly due to no plant for the tramway having been purchased during the year, while a reduction of nearly Rs.22,000 in the Central Provinces is consequent on a return to more normal conditions,



the scarcity of the previous year having made more labour available than usual and extensive works having been undertaken in order to provide employment. Increases of about R20,000 in Burma, R11,000 in Madras and nearly R13,000 in Bombay are due to normal expansion in opening up the forests. In Burma the construction programme could not be fully worked up to owing to funds being limited; in Bombay progress is still slow, more than three-quarters of the increased expenditure being incurred on improvements and repairs to existing roads. There were no changes of importance in other provinces.

#### (b) *Buildings.*

13. The total expenditure on buildings, including repairs, amounted to R6,53,557 or R8,057 more than in the previous year. New work cost R18,787 less and repairs R26,844 more than in 1907-08, but it may be noted that the expenditure of the latter year on account of new work was R1,02,517 in excess of that for 1906-07. In Bengal, the cost of new work fell by R12,000 owing to the staff being insufficient to properly supervise the work.

In the Punjab a reduction of R24,000 appears to be entirely attributable to less work having been done by the Public Works Department. The Central Provinces spent nearly R13,000 less in the erection of new buildings, but as already explained the circumstances of the previous year were abnormal. Madras and Bombay show increases of nearly R18,000 and R8,000 respectively, and it is satisfactory to observe that in these two Presidencies, as in other Provinces, much attention continues to be paid to providing subordinates with suitable quarters. As regards repairs, the only important variations were increases of R4,000 in Bengal, R7,500 in Burma, R4,000 in Eastern Bengal and Assam, R3,700 in the Central Provinces and R8,600 in Madras.

#### (c) *Miscellaneous Works.*

14. Under this head expenditure amounting to R1,75,987 was incurred as compared with R1,75,692 in the previous year. Fourteen new tanks and 60 wells were completed in the Central Provinces and a number of others were under construction, the total expenditure being R87,579 as compared with R1,15,529 in 1907-08. The explanation of the decrease is the same as that already given for less expenditure on Roads and Buildings. Bengal, the Punjab and Madras show inconsiderable decreases, but in all the other provinces expenditure on miscellaneous works was greater than in the previous year.

### 3. PROTECTION OF FORESTS.

#### (a) *General Protection.*

[*Vide* Appendices XI and XII]

15. Forest offences continue to increase, the total number of cases disposed of by the Courts or compounded during the year under review being 9,491 and 52,471 respectively, or 742 and 2,389 respectively more than in 1907-08 and respectively 604 less than and 4,429 in excess of the average for the last three years. The most important variations in the Provincial figures are increases of 1,445 cases in the Central Provinces and 2,228 in Madras and a decrease of 1,220 cases in Bombay. The percentage of convictions to the total number of cases decided by the Courts, was 85·6 as compared with 86·2 in the previous year.

16. The following statement shows the forest offences reported during 1908-09 in the whole of India compared with the average of the three preceding years and the figures for 1907-08 :—

	Average 1905-06 to 1907-08.	1907-08.	In 1908-09.
Injury by fire . . . . .	4,379	4,679	3,615
Unauthorized felling or appropriation of forest produce. . . . .	34,226	35,470	37,238
Unauthorized grazing . . . . .	24,823	25,016	26,173
Other offences . . . . .	4,837	4,528	4,274
<b>TOTAL</b> . . . . .	<b>68,265</b>	<b>69,693</b>	<b>71,300</b>

Undetected cases decreased by 541 to 7,052 or nearly 10 per cent. of the total. Owing to a generally favourable fire-season, there was a considerable decrease in the number of cases of injury to the forests by fire, and undetected offences of this class decreased by 983. On the other hand, undetected cases of illicit grazing increased by 445, Madras alone accounting for 391 of these. There was little change as regards cases of unauthorized fellings and those of a miscellaneous nature which remained undetected.

(b) *Protection from Fire.*

[Vide Appendix XIII.]

17. The total forest area under systematic fire protection increased by 737 square miles to 46,432 square miles, or 49 per cent. of the total area of reserves. The only change of importance was an increase of 749 square miles in the Central Provinces. The percentage successfully protected was 95.5 compared with 93.2 in the previous year and 93.7 the average of the preceding five years. The following statement is an abstract of Code Form 58 and shows the results in the various provinces. It may be added that only in Eastern Bengal and Assam and in Coorg were the results distinctly, and in Bombay and Ajmer slightly, worse than in 1907-08. In Coorg, the season was one of the worst on record and the damage done was greatly increased owing to a dense growth of *lantana* on some of the areas providing food for the flames and thus intensifying the severity of the fires.

PROVINCE.	AREA IN SQUARE MILES.		Proportion of forests under fire protection to total area of reserves.	PERCENTAGE OF FAILURE TO AREA PROTECTED.	
	Attempted.	Protected.		Average of past five years to 1907-08.	1908-09.
Bengal . . . . .	1,898	1,873	44.8	2.8	1.3
United Provinces . . . . .	3,206	3,136	73.3	3.4	2.2
Punjab . . . . .	955	948	43.1	1.8	0.8
Burma . . . . .	7,457	7,180	31.6	6.6	3.7
Eastern Bengal and Assam . . . . .	(a) 3,264	(a) 2,907	51.7	1.0	10.9
Central Provinces including Berar . . . . .	11,564	11,470	52.7	4.0	0.8
Coorg . . . . .	208	189	40.0	0.9	9.6
North-West Frontier . . . . .	85	(b) 85	36.01	10.0	0.2
Ajmer . . . . .	142	(c) 141	100.0	.6	0.4
<b>Total Bengal</b> . . . . .	<b>28,779</b>	<b>27,929</b>	<b>45.1</b>	<b>4.0</b>	<b>2.9</b>
Madras . . . . .	(a) 7,505	7,241	4.01	6.6	3.6
Bombay . . . . .	10,148	9,327	83.3	10.9	9.0
<b>GRAND TOTAL 1908-09</b> . . . . .	<b>46,432</b>	<b>44,497</b>	<b>49.0</b>	<b>6.3</b>	<b>4.5</b>
<b>" " 1907-08</b> . . . . .	<b>45,695</b>	<b>42,577</b>	<b>48.8</b>	<b>7.1</b>	<b>6.8</b>

(a) Includes partially protected areas.

(b) Only 125 acres were burnt.

(c) Only 357 acres were burnt.

18. A statement showing the origin of the forest fires reported, so far as this is ascertainable, appears, as Appendix XIII\*. The number of fires and the area burnt under every head are considerably less than in the previous year and the results of the fire conservancy operations must be regarded as distinctly satisfactory.

(c) *Protection from Cattle.*

[Vide Appendices XIV and XV.]

19. Out of a total forest area of 241,774 square miles only 41,188 square miles were completely closed to grazing throughout the year; though browsers were excluded from an additional area of 20,902 square miles. In Madras goats alone were also excluded from a further area of 15,516 square miles; in other words goats were admitted to graze in 983 square miles only in that Presidency. Except that the area completely closed has increased by some 2,000 square miles, these figures do not differ materially from those of the previous year. The total number of cattle admitted to graze in the Government forests was nearly 14,700,000 or nearly 400,000 less than in the previous year, during which special grazing concessions were granted owing to the prevailing scarcity.

20. The number of cattle impounded during the year was 464,055 compared with 447,821 in 1907-08, an increase of 16,234. In Madras the number increased by 22,763 to 213,802 and in the United Provinces by 4,312 to 15,067. Burma, Eastern Bengal and Assam, Coorg and Baluchistan also show small increases. In the Punjab impoundings decreased by 6,943 to 23,897 and in Bombay by 3,114 to 190,605. In the United Provinces, the Central Provinces, the North-West Frontier Province and Ajmer they were also somewhat fewer than in the previous year.

(d) *Protection against injury from natural causes.*

21. It is satisfactory to note that the favourable monsoon of 1909 appears to have checked for the present any further increase in the extensive damage caused by drought in the United Provinces and to have reduced the damage caused by insects in several provinces. The year was also a favourable one in that injury by frost was comparatively slight, but wind and storms caused much damage in several provinces. In the Simla forests the situation has become serious as a result of attacks by insects and fungi, but remedial measures are being actively carried out and the results are encouraging so far as the insect attacks are concerned. It is unfortunate that no progress has yet been made towards discovering the cause of the 'spike' disease in Sandal. Climber cutting was extensively carried out as usual in most provinces. The following information has been abstracted from the Provincial reports:—

*Bengal.*—Damage done by barking deer in past years to seedlings in the Darjeeling forests has necessitated nurseries being fenced with barbed wire and special protection being afforded to transplants put out in the forests. It is now reported that squirrels also do a considerable amount of damage to *Cryptomeria* and walnut transplants. Damage by frost is

\* It will be seen that the total area burnt according to Appendix XIII, does not agree with that in paragraph 17 above. This is due to unexplained discrepancies in the Punjab, Madras and Bombay reports, in some of which the causes of all fires reported, whether they occurred in the protected area or not, appear to be given. The utility of this course is not obvious. Information regarding fires that occur in unprotected areas must be scanty and unreliable and the inclusion of such in the returns serves no useful purpose.

extensive in the Palamau forests but less so in Hazaribagh. As usual wild elephants were the cause of much injury in the Duars forests of Tista and in Angul.

*The United Provinces.*—The extensive damage caused by the dying off of Sal over large areas was investigated during the year and is believed to be due to the lowering of the permanent water level as a result of a succession of years of deficient rainfall. The heavy rain of April 1909 did an immense amount of good and checked for the present any further increase in the damage. It is hoped that the excessive rainfall of the year under report will go far to permanently remedy the very serious state of affairs. In the Eastern Circle it is estimated that the stock on 10,000 acres is quite dead and that more than 60,000 acres are very seriously affected. In the Western Circle the injury is less extensive but the damage to reproduction due to the prolonged drought and to the extensive fires of 1908 is in many places very serious.

*The Punjab.*—The report discloses a very serious situation in the Simla blue-pine forests which are threatened with extinction by a fungus pest (*Trametes pini*). Energetic steps are being taken to combat the attack by felling and burning or removing the affected trees and there is some hope of being able to confine it to its present location; an insufficient labour supply hampers progress in this direction. Less serious attacks by other fungi are reported from several divisions and are being dealt with. In the Simla Catchment Area the beetle attack has been combated by felling numerous trap trees as suggested by the Forest Zoologist. As a result there has been a marked decrease in the numbers so far as the *Scolytus* and *Buprestid* are concerned, but the *Dongicorn* seems to be increasing; active steps are being continued. Similar measures are being taken in Kulu in connection with a *Polygraphus* which is attacking the Blue-pine.

*Burma.*—As usual the defoliating caterpillars *Hyblaea puera* and *Pyrausta nuchalis* did a certain amount of injury to teak, but no damage of a wide-spread or serious nature is reported. The most destructive insect pest is the 'bee-hole' borer (*Duomitus ceramicus*) which causes extensive damage to teak timber; it appears to be spreading. Local damage by climbers and epiphytic *fici*, by several species of insects and fungi and by floods is also reported.

*Eastern Bengal and Assam.*—Insects are reported to have caused some injury, but the amount of damage done was very small.

*The Central Provinces.*—Damage by frost was comparatively slight except in some low-lying localities; in Saugor steady progress continues to be made towards recovery from the severe frost of 1904-05. Wind and wild animals caused a good deal of damage in several localities. In the Balaghat Division the *Hoplocerambyx spinicornis* did more damage than usual to Sal and remedial measures are suggested; in Berar species of *Batocera*, *psiloptera* and *Canthara* beetles did much damage in Babul plantations and the various remedial measures employed were not very efficacious, it being very difficult to apply such measures owing to Babul forming impenetrable thickets; other insects seem to have done little damage. In the Northern Circle a systematic campaign for the eradication of the *Loranthus* parasite by lopping the branches of the trees affected was inaugurated and similar measures were employed in the other circles.

*Coorg.*—For the second year in succession it is reported that there was no spread northward of the 'spike' disease of Sandal; but heavy rain in May 1909 was immediately followed by an increase of the disease in the affected area, in which there was no diminution of casualties. The number of diseased trees uprooted during the year was 23,100 compared with 13,200 in the previous year and an average of 28,200 during the 8 years since operations commenced. *Lantana* is also a source of much damage and its indirect effects as a feeder of forest fires has already been alluded to. A scheme for its systematic eradication is being drawn up.

The reports of the North-West Frontier Province, Ajmer, Baluchistan and the Andamans contain nothing of particular interest in this connection.

*Madras.*—The 'spike' disease continued to spread in the Sandal wood tracts in North Coimbatore. Insects and fungi also continued to attack the Casuarina plantations, but the remedial measures adopted were attended with beneficial results. The heavy rains in May resulted in less damage than usual being done by defoliating caterpillars in teak plantations. Fungi, insects and floods are reported to have done some damage locally.

*Bombay.*—Damage from frost was slight but wind-falls were comparatively numerous. Wild animals, especially pig, bison and elephants are reported to have done considerable damage, but elephants are also said to have facilitated regeneration by breaking down bamboos and so reducing overhead cover. Damage by insects was not extensive, but operations were carried out on a considerable scale for the eradication of *Loranthus* and *Lantana*.

which cause much injury. There was a heavy mortality amongst Sandal trees from some unknown cause which is possibly the 'spike' disease.

#### 4. SYLVICULTURE.

##### (a) *Natural reproduction.*

22. Owing to early rains and favourable climatic conditions, natural regeneration was better than usual in most provinces. The provincial reports show that as the result of continued experiments fair progress is being made in ascertaining the conditions most favourable for the production of seedlings, and the measures required to bring them to maturity and increase the proportion of the more valuable species. Much still remains to be done, however, and the practical application of the knowledge acquired is frequently a matter of much difficulty owing to scarcity of labour or to the staff being inadequate or incompetent to properly supervise the necessary operations. Brief details for each province are given in the following abstracts from provincial reports:—

*Bengal.*—The crop of Sal seed was generally good and, the season being particularly favourable, an unusually large percentage of seedlings is reported to have survived. These remarks apply only to forests closed to grazing and successfully protected from fire. The benefits to Sal regeneration of closure, coupled with successful fire protection, are well exemplified in the Singbham and Sambalpur forests, where the increase in the advance growth during recent years is remarkable. It is said that, from the results obtained in the damp forests of the Kurseong Terai in those areas in which artificial assistance has been repeated for three or four years, it appears to be fairly certain that excellent regeneration can be assured. Reproduction of other species is fairly successful in areas closed to grazing. Coppice reproduction is good.

*United Provinces.*—The year was a good one for natural reproduction; in the hills all the important species seeded well and seedlings are numerous. In the plains Sal seeded scantily but the seed did well. Other species varied very much in different localities. Sal coppice shoots generally did well. In the Western Circle bamboos which gave very few culms in 1907 produced a record crop in 1908.

*Punjab.*—Apart from minor factors adversely affecting reproduction, it seems clear that, although in almost all situations indigenous trees seed or coppice freely, it is impossible to obtain natural reproduction so long as excessive grazing is allowed. Several investigations are now in progress in connection with natural reproduction and it is probable that the working plans for some forests will require alteration if the areas are to be successfully regenerated.

*Burma.*—The experiments in connection with the natural regeneration of teak in fire-protected areas were continued, but there is at present nothing to add to the remarks made last year. It will probably be some years before any definite conclusion as to the best method to adopt to ensure reproduction can be arrived at. Reproduction of species other than teak is generally reported to be good, and fire-protection has an excellent effect on that of *pyinkado* (*Xylia dolabriformis*.)

*Eastern Bengal and Assam.*—Sal is reported to have seeded well in all Divisions where this species occurs and its natural reproduction was also generally good. Experiments to ascertain the effect of burning the undergrowth on the natural regeneration of Sal were carried out, but no definite conclusions are yet possible. The natural regeneration of *Mesua ferrea* is good where conditions are favourable, and a marked improvement was observed as the result of improvement fellings and weedings. Reproduction of other species appears to have been generally good except in a few localities.

*The Central Provinces.*—On the whole the year was a favourable one for natural reproduction, although high winds and heavy rain early in the season did considerable damage to the seed crop of several species, including Sal. Coppice reproduction was universally good and frost proved less harmful than usual.

*Coorg.*—Owing to early and good rains the reproduction of the most important species was better than in the previous year. Teak was an exception.

*North-West Frontier Province.*—The seed year was not a good one for either deodar, blue-pine or chil, but seedlings of broad-leaved species were more abundant than usual. Silver fir seedlings are generally plentiful but few appear to survive. Coppice reproduction is satisfactory except so far as oak is concerned.

*Ajmer.*—The year was a good one for natural reproduction.

*Baluchistan.*—The season appears to have been an unfavourable one. In some localities poor reproduction is attributed to excessive and untimely rainfall; in others to excessive heat and a shortage of rain. Coppice reproduction continues to be satisfactory.

*Andamans.*—Padouk seeded abundantly during the year under review, but the report mentions the reproduction of no other species and that of padouk only with reference to a few small areas.

*Madras.*—Speaking generally the year was favourable for the reproduction of all species whether from seed or coppice, and exceptionally so in the Central and Southern Circles owing to the unusual hot weather rains. Where reproduction was poor, its failure is ascribed to scanty rainfall or excessive grazing. An interesting fact is that teak has established itself over 50 square miles in the East Kurnool Division where ten years ago there was practically none. This appears to be due to the felling of trees of other species having given the teak room to develop.

*Bombay.*—Conditions were generally favourable and results were good in areas which have been successfully protected from fire for two or three years. In Khandesh and Nasik *Anyan* seedlings were particularly numerous. In Sind natural reproduction was stimulated by a high inundation and an unusually heavy rainfall, but in some cases it suffered from an excess of moisture. The seeding of teak failed as a rule throughout the Northern Circle but reproduction is reported to be good.

### (b) Artificial Reproduction.

[*Vide Appendix XVI.*]

23. The areas of regular and taungya plantations at the close of the year were 55,780 acres and 84,123 acres respectively compared with 61,245 acres and 83,171 acres respectively at the close of 1907-08. As regards regular plantations, 4,625 acres were added during the year, including 2,193 acres in Madras 1,387 acres in Bombay and 528 acres in the United Provinces; 3,594 acres were excluded, including 2,666 acres in Bombay, chiefly on account of failure, 507 acres—the Chānga Manga plantations—in the Punjab, which have been transferred to forest and are apparently no longer to be regarded as plantations; in Bombay also 3,151 acres shown in 1907-08 as regular plantations have been transferred to cultural operations by reducing the opening balance of 1908-09. The principal changes in connection with taungya plantations were the addition of 707 acres and the exclusion of 301 acres in Burma, and the addition of 1,613 acres and the exclusion of 1,702 acres in the Central Provinces. The latter exclusion is not explained but it is presumed that the areas are considered as fully stocked and are in future to be regarded as forest and not as plantations.

The total expenditure on plantations amounted to R2,35,803 compared with R2,36,966 in the previous year. In these amounts are included R39,822 and R41,237 respectively on account of the Mergui Rubber plantation in Burma.

24. Cultural operations were carried out in most provinces, but varying methods of classifying the different works and, in some cases, incomplete information render it impossible to give accurate figures. The following statement has been prepared from the Circle Form (No. 61) and gives the areas newly operated on during the year and the total expenditure.

	Area worked over.	Total expenditure.
	Acres.	Rs
Bengal . . . . .	938	5,924
United Provinces . . . . .	1,393	6,698
Punjab . . . . .	739	3,658
Burma . . . . .	17,252	8,945
Eastern Bengal and Assam . . . . .	15	241
Central Provinces . . . . .	2,857	1,245
Coorg . . . . .	...	...
North-West Frontier Province . . . . .	232	202
Ajmer . . . . .	209	...
Baluchistan . . . . .	1	11
Andamans . . . . .	...	...
Total Bengal . . . . .	23,686	26,924
Madras . . . . .	7,768	25,220
Bombay . . . . .	50,690	10,215
GRAND TOTAL . . . . .	82,144	62,859

(c) *Operations for the improvement of the growing stock.*

25. Too much importance cannot be attached to operations of this nature as on them depends in a great measure the future state of most Indian Forests. This is fully realized but the extent to which such works can be carried out and their usefulness are limited by the number and capabilities of the staff, the supply and quality of labour and the funds available. So far as can be judged, much more attention is now being paid to these operations than was the case a few years ago and this is no doubt chiefly due to the re-organizations of the controlling and subordinate establishments which have been given effect to in most provinces. At the same time some of the Circle Reports, while stating generally the operations carried out, give little or no information regarding the areas worked over and the cost incurred. It is thus impossible to ascertain what progress is being made. This is particularly the case in Madras and Bombay, but in the reports of other provinces details of area or cost or both are frequently lacking. The following statement has been compiled from such information as is available in the Circle Reports:—

Province.	Climber cutting only.		Improvement fellings, Cleanings, etc.	
	Area worked over.	Cost.	Area worked over.	Cost.
	Acres	Rs	Acres	Rs
Bengal . . . . .	23,655	3,021	6,935	2,855
United Provinces . . . . .	75,104	4,815	49,278	12,059
Punjab . . . . .	946	...	25,527	5,876*
Burma . . . . .	202,604	34,546	78,195	36,028
Eastern Bengal and Assam . . . . .	87,530	17,718	9,906	4,929
Central Provinces . . . . .	141,807	4,277	74,138	30,862
Coorg . . . . .	...	...	1,340	251
North-West Frontier Province . . . . .	...	...	38	61
Ajmer . . . . .	...	...	...	...
Baluchistan . . . . .	...	...	...	...
Andamans . . . . .	...	...	...	...
TOTAL . . . . .	531,646	64,377	245,567	92,921

\* Includes cost of climber cutting.

## (d) Experiments.

26. Experiments carried out by the Forest Department have shown that Para rubber (*Hevea brasiliensis*) can be successfully grown in Southern Burma and (*Ficus elastica*) in Assam, but little success has attended the efforts to grow these and other rubber producing species in other parts of India. The most important experiments in the various provinces are summarized in the following abstracts from the provincial reports :—

**Bengal.**—The attempt to provide grazing on a specially prepared and turfed area for the cattle required for the milk supply of Darjeeling is proving very expensive, and seems unlikely to be successful. It is being continued.

**United Provinces.**—Of the four exotics tried in the Naini Tal Division, *Bucklandia populnea* and *Eucalyptus Globulus* failed altogether, whilst *Acacia decurrens* and *Cryptomeria japonica* proved a success, especially the former. Other experiments with exotics were not very successful except that the seed of *Catalpa speciosa* germinated well. Although the skew method of tapping *chir* pine yielded 20 per cent. more resin than the vertical method, all the trees so treated have subsequently died and the system has consequently been condemned. The experimental cultivation of lac was continued, but the results obtained are still the reverse of encouraging. Investigations have shown that long grass in blank forest areas affords protection to *Sal* seedlings from frost. All the seedlings on areas cleared of grass died whereas in the areas not so cleared a fair number survived. Experiments to test the feasibility of floating billets of spruce and silver fir from the Jaunsar forests are as yet inconclusive. The same remark applies to the attempt to keep hay in stacks for a year or more, the re-stocking of chanders in the Cis-Sarda forests and other re-stocking experiments and the protection of *Sal* shoots from frost.

**The Punjab.**—The experiments with *Catalpa speciosa* indicate that this species is unsuitable. *Pinus pinaster* continues to do well in Bashahr but it appears to have no advantages over the indigenous species so far as the re-afforestation of denuded slopes is concerned. Experiments with *Salix Babylonica* in Multan are promising. Extensive experiments with numerous species of *Eucalyptus* are being continued with a view to afforesting the hills in the neighbourhood of Simla and those bordering on the Kalka-Simla railway. In the Simla Municipal forests an experimental orchard has been started and other plots have been selected with a view to ascertaining whether it is feasible to successfully cultivate fruit for commercial purposes. Many silvicultural experiments are in progress but some years must elapse before any definite deduction can be drawn from the results.

**Burma.**—Experiments with Andamans Padouk (*Pterocarpus dalbergioides*) and *Catalpa speciosa* were continued with indifferent results. Camphor (*Cinnamomum Camphora*) is reported to have succeeded wonderfully well at Maymyo but less well at Taunggyi. Numerous silvicultural experiments are in progress, but no definite results have yet been obtained. The proposed experimental cultivation of lao with seed lao from India could not be carried out as the seed lao miscarried.

**Eastern Bengal and Assam.**—Experiments in the propagation and cultivations of lac were continued but, though promising in some localities, they are as yet inconclusive. *Catalpa speciosa* proved disappointing as most of the seeds failed to germinate.

**Central Provinces.**—Many silvicultural experiments are being carried out but it is too early to draw definite conclusions from them. The few exotics experimented with do not appear to have given satisfactory results.

**North-West Frontier Province.**—Attempts to cultivate *Podophyllum emodi* are not very promising. A number of *Eucalyptus Globulus* planted at Bagnotar were all killed by frost but *Robinia* seems likely to be more successful.

**Madras.**—The experiments with a large number of exotics have so far yielded no results of value and nothing definite has yet been ascertained as to the relative effects of burning, grazing and cutting on the quality of the grass appearing subsequently.

**Bombay.**—The experiments with various rubber producing species—*Para*, *Ceara*, *Castilloa* and *Ficus elastica*—were continued on a fairly extensive scale. Although nothing definite can yet be said regarding the possibility of making the growing of rubber in Bombay a commercial success, a generally unfavourable opinion appears to prevail amongst the officers of the Department. Few experiments with indigenous or exotic trees and plants are reported and all are so far inconclusive.



## 5.—EXPLOITATION.

(a) *System of Management.*

27. In the provinces outside the Bombay and Madras Presidencies the total area under regular Working-Plans came to 34,652 square miles at the close of the year under review. This includes 334 square miles in the United Provinces and 38 square miles in Burma, Working-Plans for which are under revision. The remark made last year in regard to 317 square miles of forests in the Andamans applies to this year also.

The various sylvicultural systems in force over this area are summarised in the following table :—

Sylvicultural system.	Area in square miles.	Percentage of total area under each Sylvicultural system.
Method of Clear Fellings by compartments . . . . .	5	·01
Uniform method . . . . .	184	·53
Group method . . . . .	1	·00
Selection method . . . . .	11,270	32·52
Simple coppice . . . . .	125	·36
Coppice with standards . . . . .	2,226	6·43
Method of Improvement fellings . . . . .	7,295½	21·06
	(a) 13,545½	39·09
<b>TOTAL</b> . . . . .	<b>34,652</b>	<b>100·00</b>

(a) Included in forests for which Working-Plans have been prepared but not subjected to any definite system of working.

Attention continues to be given to the question of introducing the uniform method, or modifications of it, experimentally in different classes of forests, and Working-Plans with this object in view are under preparation, or are contemplated, in connection with some of the *Sal* forests of the United Provinces and Bengal, some of the teak forests of Burma, the Pine (*Pinus Khasya*) forests of Assam, and the Deodar Forests of the Punjab.

(b) *Agency of Exploitation.*

[ *Vide* Appendix XVIII.]

(i) *Departmental Agency and (ii) Purchasers.*

28. The substitution of private enterprise for departmental working resulted in a total reduction of more than one million cubic feet in the quantity of timber removed by Government Agency, which amounted to 6,758,266 cubic feet in the year under review. The principal decreases were in the Punjab, Burma and Madras, while considerable increases occurred in Eastern Bengal and Assam and the Central Provinces. The quantity removed by purchasers increased by somewhat less than one-third of a million cubic feet to a total of 53,274,103 cubic feet, but the provincial figures show considerable fluctuations. A decrease of over 3½ million cubic feet in the Punjab (according to

Form 62) is not explained, while an increase of over 3 million cubic feet in Burma is chiefly due to a favourable floating season having facilitated the extraction of teak by purchase contractors.

As regards fuel, the quantity extracted by Government Agency amounted to 20,104,293 cubic feet or nearly  $1\frac{1}{2}$  million cubic feet less than in 1907-08, Madras alone accounting for a decrease of more than  $1\frac{1}{2}$  million. Purchasers extracted 94,238,730 cubic feet or nearly  $2\frac{1}{4}$  million cubic feet more than in the previous year. Here again the provincial figures vary considerably. Bombay shows an increase of over 3 million cubic feet extracted by purchasers, and Bengal and Eastern Bengal and Assam increases of more than one million cubic feet each. The chief decreases were considerably over a million cubic feet each in the United Provinces and the Central Provinces and more than three-quarters of a million cubic feet in the Punjab.

The total outturn of bamboos amounted to 7,082,790 extracted departmentally and 150,254,324 extracted by purchasers, or nearly 11 millions less than in the previous year. The difference is made up of  $3\frac{1}{2}$  millions by Government Agency and more than  $7\frac{1}{2}$  millions by purchasers. The principal change under Government Agency was a decrease of nearly  $3\frac{1}{4}$  millions in Madras, while in the quantities extracted by purchasers increases occurred in Bengal ( $1\frac{1}{2}$  millions) and Burma ( $4\frac{1}{2}$  millions) and decreases in the United Provinces ( $4\frac{1}{2}$  millions) and Madras ( $9\frac{1}{2}$  millions).

The value of the minor produce extracted departmentally and by purchasers was Rs2,95,435 and Rs45,90,483 respectively or Rs37,136 and Rs63,303 respectively less than in the previous year. Eastern Bengal and Assam (Rs16,264), the Central Provinces (Rs12,588) and Madras (Rs16,777) are chiefly responsible for the decrease under the former head and the Central Provinces (Rs91,188), Bombay (Rs80,502) and Madras (Rs17,835) for that under the latter, under which also increases occurred in Bengal (Rs17,875), the United Provinces (Rs56,977), the Punjab (Rs16,619), Burma (Rs23,285) and Eastern Bengal and Assam (Rs19,253).

### (iii) Rights and privileges.

29. The following statement compares the estimated quantities of Forest produce removed from the forests by right and privilege-holders during the last two years\* :—

	1907-08.	1908-09.	Difference.
Timber (cubic feet)	2,464,266	2,568,188	+98,922
Fuel	48,400,846	47,125,156	-1,275,690
Bamboos (number)	22,160,618	20,388,078	-1,777,540
Minor produce, including grass and grazing (value).	Rs13,84,749	Rs15,73,766	+Rs1,89,017

### (iv) Free grants.

30. The quantities of forest produce granted free during the year under review and that preceding it were as follows :—

	1907-08.	1908-09.	Difference.
Timber (cubic feet)	2,112,544	1,814,388	-298,206
Fuel	7,653,814	6,157,792	-1,495,522
Bamboos (number)	2,987,151	2,548,829	-438,322
Minor produce, including grass and grazing (value).	Rs7,68,135	Rs4,79,059	-Rs2,89,076

\*It is noticed that in some provinces, particularly Bombay, the produce removed by right-holders is not invariably shown in Forms 62 and 63 accompanying the Circle reports.

The decrease under all heads is accounted for by the fact that 1907-08 was a year of general scarcity and large free grants were made to relieve the prevailing distress.

(c) *Outturn of forest produce.*

[*Vide Appendix XVII.*]

31. The following statement shows the total outturn from all classes of forest as compared with that of the previous year :—

Presidency.	Year.	Timber and Fuel.	Bamboos.	Minor produce.
		Cubic feet.	No.	R
Bengal.	{ 1908-09	165,610,118	135,208,376	39,41,889
	{ 1907-08	169,524,073	133,035,771	42,18,119
Madras	{ 1908-09	24,415,574	32,001,730	15,70,521
	{ 1907-08	26,354,690	44,657,836	16,20,999
Bombay	{ 1908-09	42,010,178	13,065,015	14,17,333
	{ 1907-08	39,103,360	15,733,416	13,00,123
TOTAL	{ 1908-09	232,035,865	180,276,021	69,38,743
	{ 1907-08	234,982,123	193,427,023	71,30,241

As it is not possible to ascertain from the Madras and Bombay reports the quantity of forest produce derived from each class of forest, the following remarks apply to the Bengal Presidency only.

The total outturn of timber and fuel from reserves was nearly 5 million cubic feet less than in the previous year. The principal decreases were in the United Provinces, the Punjab and the Central Provinces, while Bengal, Burma and Eastern Bengal and Assam show considerable increases. There was little change in the outturn from protected forests but that from unclassified forests increased by  $1\frac{1}{2}$  million cubic feet, of which Eastern Bengal and Assam accounts for 1 million.

The total outturn of bamboos increased by more than 2 millions, made up of an increase of over 5 millions from unclassified forests and a decrease of over 3 millions from reserves. In the United Provinces the decrease from reserves amounted to over 4 millions. A considerable reduction also occurred in the Central Provinces but the increased outturn in Bengal and Burma amounted to nearly 2 millions. The outturn from protected forests was practically the same as in the previous year, while of the increase from unclassified forests Burma accounts for more than  $4\frac{1}{2}$  millions and Eastern Bengal and Assam for over half a million.

The most important factor in the total decrease under minor produce was a reduction of Rs. 3,64,059 from reserves in the Central Provinces, which is mainly due to a more normal season having necessitated fewer free grants but also to a smaller demand. The outturn from reserves shows a total decrease of Rs. 3,34,922 and that from protected forests a decrease of Rs. 23,458. The outturn from unclassified forests on the other hand increased by Rs. 82,150, to which Burma and Eastern Bengal and Assam were the chief contributors.

## (6) EXPORTS OF FOREST PRODUCE.

[Vide Appendix XXIV.]

32. The total value at ports of shipment of forest products exported amounted to 408 lakhs of rupees as compared with 563½ lakhs in 1907-08 and 483 lakhs the average of the previous five years. The great decline is due to a considerable fall in the market value of nearly all descriptions of produce, especially lac.

Exports of caoutchouc decreased by 51 tons to 98 tons. The market value declined by Rs627 per ton with the result that the total value fell from Rs5,78,397 to Rs3,19,039.

The total quantity of the various descriptions of lac exported increased by 903 tons to a total of 19,041 tons, but a great fall in value, which in the case of shellac amounted to Rs861 per ton, resulted in a reduction of Rs1,28,83,627 in the total value of the exports, this being Rs2,79,46,962.

The average market value of cutch and gambier declined by Rs21 to Rs295 per ton and the total quantity and value of the exports decreased by 1,446 tons and Rs5,23,885 respectively.

A further decrease in the exports of teak occurred, the quantity amounting to 27,220 tons as compared with 39,539 tons in the previous year. This, combined with a decline of Rs7 per ton in the market value, resulted in the total value of this timber exported decreasing by Rs21,14,813 to Rs40,19,857.

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## CHAPTER III.

### FINANCIAL RESULTS.

[Vide Appendices XIX to XXIII.]

33. The Gross Revenue, Expenditure, Surplus and the percentage of expenditure to Gross Revenue for the last 36 financial years were as follows:—

Quinquennial periods.	Gross Revenue (Average).	Expenditure (Average).	Surplus (Average).	Proportion of Expenditure to Gross Revenue.
	R	R	R	Per cent.
1873-74 to 1877-78 . . .	67,23,191	44,76,303	22,46,888	66
1878-79 to 1882-83 . . .	79,15,956	52,00,538	27,00,418	66
1883-84 to 1887-88 . . .	1,10,59,494	71,42,382	39,17,052	64
1888-89 to 1892-93 . . .	1,51,80,115	82,61,176	69,24,939	55
1893-94 to 1897-98 . . .	1,74,50,655	96,57,496	77,93,159	55
1898-99 to 1902-03 . . .	1,90,22,776	1,08,42,872	81,79,904	57
1903-04 to 1907-08 . . .	2,50,55,151	1,35,94,021	1,14,61,130	54
Year.				
1908-1909 . . . . .	2,54,56,799	1,47,26,034	1,07,30,765	58

34. Compared with the previous year the gross revenue realized was R4,06,180 less, while the expenditure was R2,13,101 greater. The surplus was therefore less by R6,19,281, and as a fall in the surplus amounting to R10,77,640 was recorded in 1907-08, the financial results at first sight appear to be somewhat disappointing. The effects of the almost universal scarcity of 1907-08 were still, however, apparent during the year under review and adversely affected the demand for forest produce in several provinces. Another cause contributing to a decrease in the gross revenue is the policy of encouraging the exploitation of the forests by private agency, which must also tend towards a reduction in the expenditure on exploitation and for a time in the surplus. Owing mainly to this policy the expenditure on conservancy and works was R1,79,707 less than in 1907-08. That on establishments and miscellaneous charges was, however, R3,92,808 greater. The increase under the latter head was not unexpected and is due in a great measure to the reorganizations which have been effected during the last few years in every branch of the service. The full effect of these reorganizations, both as regards the increased expenditure involved and the improvement in the working of the forests, will not be apparent for several years, but it may be confidently anticipated that they will render more systematic and intense working possible and that a considerably increased revenue will result at no distant date.

35. As regards the gross receipts in the various provinces, only in Burma (R5,28,043) and Eastern Bengal and Assam (R15,921) was there any increase, and in Burma this is mainly attributed to a favourable floating season which enabled purchase contractors to extract larger quantities of teak. Decreases

exceeding one lakh occurred in the United Provinces (Rs2,34,339), the Punjab (Rs1,68,657), the Central Provinces (Rs2,11,966) and the North-West Frontier Province (Rs1,15,708).

36. The most marked changes in expenditure were increases in Burma (Rs1,65,715), Eastern Bengal and Assam (Rs90,976), the Central Provinces (Rs1,69,900), Madras (Rs1,36,404) and Bombay (Rs88,446), and decreases in Bengal (Rs1,29,413) and the Punjab (Rs3,25,069).

37. Increases in the net Revenue occurred only in Bengal (Rs1,16,608), the Punjab (Rs1,56,412) and Burma (Rs3,62,328). Decreases are shown by the United Provinces (Rs2,62,762), Eastern Bengal and Assam (Rs75,055), the Central Provinces (Rs3,81,866), Coorg (Rs45,202), the North-West Frontier Province (Rs1,08,721), Ajmer (Rs3,977), the Andamans (Rs41,478), Madras (Rs1,39,315) and Bombay (Rs1,47,267). In Baluchistan the deficit was Rs6,852 greater than in the preceding year.

38. The estimated value of forest produce granted free or at reduced rates during the forest year was Rs45,97,450 as compared with Rs49,53,319, in 1907-08. The most important changes were a reduction of Rs5,34,585 on account of grass and grazing and of Rs1,36,441 on account of bamboos, for which the improved conditions of the year account, and an increase of Rs3,26,799 in the estimated value of other minor produce.

39. The following statement shows the financial results of the working of the forests after deducting capital expenditure not yielding an immediate return :—

	R
Gross Revenue . . . . .	2,54,56,799
Value of produce granted free or at reduced rates . . . . .	45,97,450
Total value of yield . . . . .	3,00,54,249
	R
Gross Expenditure . . . . .	1,47,26,034
Deduct expenditure not yielding an immediate return :—	
(a) Roads and Buildings . . . . .	14,19,511
(b) Cultural operations . . . . .	6,62,091
(c) Working-Plans . . . . .	72,711
(d) Settlements . . . . .	67,544
(e) Surveys . . . . .	1,15,964
(f) Demarcation . . . . .	1,54,025
TOTAL . . . . .	24,91,846
Balance of direct revenue producing expenditure . . . . .	1,22,34,188
Surplus over expenditure directly chargeable to Revenue . . . . .	1,78,20,061

## CHAPTER IV.

## GENERAL.

## 1.—ADMINISTRATION.

30. Mr. S. Eardley-Wilmot, C.I.E., continued to hold the post of Inspector General of Forests up to the 9th November 1908, when he retired from the Indian Forest Service. He was succeeded by Mr. F. Beaulon Bryant, Chief Conservator of Forests, Burma.

With a view to obviating the difficulties experienced under existing arrangements in filling vacancies occurring on the India List, the 13 Imperial Service posts on that list together with a leave and training reserve of three officers were distributed among the several provincial cadres in the proportion of their respective sanctioned strength. The distribution resulted in the addition of five posts to the Burma cadre, two each to the Madras, Bombay, United Provinces and Central Provinces cadres and one each to the Bengal, Eastern Bengal and Assam and Punjab cadres.

The reorganisation schemes sanctioned by the Secretary of State during the year involved the addition of the following Imperial and Provincial Service appointments :—

	Imperial.	Provincial.
Bombay . . . . .	2	3
Bengal . . . . .	...	1
Eastern Bengal and Assam . . . . .	5	10
Central Provinces . . . . .	2	11

These appointments include an additional Conservator for the charge of a newly created second circle in Eastern Bengal and Assam and the respective shares of the India List appointments allotted to the several provincial cadres. Schemes for the reorganisation of the Controlling Staff of the Forest Department in the Madras Presidency and in the Punjab were under consideration.

Three officers of the Imperial Service retired, one resigned and two died during the year.

*Officers on Foreign Service.*

41. The following statement shows the officers on foreign service in India, in British Colonies and serving under other Governments :—

*In India.**Imperial Service.*

1. Mr. W. H. Lovegrove (United Provinces), Kashmir from October 1907.
2. „ R. M. Williamson (Central Provinces), Rewah State from October 1907.
3. „ C. G. Trevor (Punjab), Chamba State from April 1908.

*Provincial Service.*

1. Lala Daulat Ram (Punjab), Kashmir.
2. Rai Bahadur M. Muttannah (Madras), Mysore.
3. Rao Sahib M. Rama Rao (Madras), Travancore.
4. Mr. G. W. Thompson (Madras), Jeypore.
5. Pandit Thakur Das (Punjab), Jubal State.
6. Mr. W. G. Gilmore (Central Provinces), Indore State.
7. „ B. Inamati Shama Rao (Central Provinces), Mysore.
8. Bhagawandas Harkisandas Dalal (Bombay), Rajpipla.
9. Mr. A. P. Mudaliar (Bengal), Mysore.
10. Rai Bahadur Keshva Nand (United Provinces), Kashmir.
11. Lala Har Sarup (United Provinces), Gwalior.
12. F. J. Langhorne (Central Provinces), Court of Wards.

*Under other Governments.*

Mr. W. F. Lloyd (Bengal), Siam.

Mr. S. A. Wood (Burma), Soudan.  
(Services transferred permanently to the  
Soudan Government.)

Although the financial results of the Burma Kheddah operations have so far proved disastrous, it was decided during the year to continue operations on a reduced scale for a further period of three years. Enquiries into reports that extensive frauds had been committed led to the suspension early in the year of the Officiating Superintendent of the Kheddah Department and one of his Assistants. Both officers were subsequently criminally prosecuted, but the case was still under trial at the end of the year. Meanwhile the Deputy Conservator of Forests, Katha Division, was temporarily appointed Superintendent in addition to his own duties and a Provincial Service Forest officer was appointed Assistant Superintendent. As a consequence of the disorganisation resulting from the change of management and the necessary enquiries in connection with the alleged frauds, no hunting operations were undertaken during the year. In future the Annual Report of the Kheddah Department is to be attached to the Forest Administration Reports.

An improved system of compiling the Annual Forest Administration Report has been introduced by the Bombay Government. Instead of the reports for the several circles being printed separately, one after another, the remarks of each Conservator bearing on the same subject are brought together in one place. This greatly facilitates the collection of information on any matter for the whole province, and the system is one that might be adopted with advantage in all provinces in which there are two or more circles.

**2.—RECRUITMENT, TECHNICAL EDUCATION AND RESEARCH.**

42. Ten officers who had completed the Forestry course at Oxford and who had obtained the Diploma of Forestry of that University, were appointed Assistant Conservators of Forests and arrived in India about the end of 1908. Three of these were posted to Madras, two to Burma and one each to the United Provinces, the Punjab, Bombay, Bengal and Eastern Bengal and Assam. Sixteen candidates were selected in England by the Secretary of State for training at Oxford for the Indian Forest Service.

43. The posts of President of the Imperial Forest Research Institute and of Principal of the Imperial Forest College at Dehra Dun, were held by Mr. L. Mercer until the 12th April 1909, when he proceeded on leave and was relieved by Mr. A. M. F. Caccia, the Superintendent of Forest Working-Plans and Imperial Sylviculturist. The latter post was then filled by Mr. R. S. Troup, the Forest Economist, Mr. R. S. Pearson, Deputy Conservator of Forests on the Bombay list, being in turn appointed Economist in Mr. Troup's place. Messrs. E. P. Stebbing, R. S. Hole and Puran Singh, continued to hold the posts of Forest Zoologist, Botanist and Chemist, respectively.

44. The Provincial Service class of 1908-09 consisted of six students—five in the service of the Government and one from the Mysore State. All six obtained pass certificates.

45. The special Entrance Examination having been abolished, out of 105 applications received from the various Local Governments and Conservators of Forests, 56 candidates were selected and joined the College in April 1909. This number included seven students deputed by Native and Foreign States. On the results of the Final Examination held in March 1909, for the class



of senior students, Higher Standard certificates were granted to 32 candidates and Lower Standard certificates to eight. Only one student failed to obtain a certificate. Since the Imperial Forest School was founded in 1878, Higher Standard certificates have been granted to 654 students and Lower Standard certificates to 189 students.

46. *Forest Research*.—Full details of the work of the year appear in the Progress Report of the Imperial Forest Research Institute, but the following brief summary may be of general interest:—

*Sylviculture and Working-Plans*.—For various reasons little original research in Sylviculture was possible and the work of the year had to be restricted to the collection and compilation of information already available in existing local records. Among the subjects under investigation were (i) the preparation of yield tables for various species under some definite system of management, (ii) the selection method of treatment and the uniform method of successive regeneration fellings as applicable to Indian Forests. A comprehensive note on the selection system was published and a note on the uniform method was under preparation, (iii) the collection of information regarding plantation work on a large scale, (iv) the collection of statistical data for various species. A Forest pamphlet (No. 8, Working-Plans series No. 2) containing statistical data for *Sal* (*Shorea robusta*) was published during the year. A note regarding the methods of collecting and recording statistical data was also published with the object of ensuring that such work is carried out on uniform lines throughout India, (v) sylvicultural notes relating to various species, and (vi) the height at which bamboos should be felled and the effect of the season of felling on the durability of the culms.

*Forest Botany*.—The principal subjects under study during the year were (i) Teak coppice and reproduction, (ii) Forest grasses, with special reference to the effects of fire upon them, and (iii) the various species or forms of *grewia* of economic importance, with special reference to the production of a satisfactory classification and description of the same. The results of the enquiry into the first subject were sent to the Press for publication in the form of a Pamphlet. In view of the enormous and steadily increasing number of cattle for which it is necessary to provide grazing in the State Forests, the second subject is one of great importance. A certain amount of information has been collected but the subject is such a large one that its full investigation must extend over several years. The third subject has already been under study for two years and it is hoped that it will be possible to publish the full results of the investigation next year.

A manual of Botany was also published during the year.

*Forest Economy*.—Considerable progress was made with the many investigations initiated in former years, of which the most important was that relating to the match industry in India. A memoir on this subject by Mr. R. S. Troup and six other publications were in the press at the close of the year, while three publications were issued during the year. The most important of the latter was a memoir entitled "Indian woods and their Uses" in which the principal characteristics and uses of over 550 species are described.

*Forest Chemistry*.—Perhaps the most important work carried out by the Forest Chemist was an investigation regarding the manufacture of tannin extracts from Mangrove *Sal* bark the object being to produce marketable decolourised tannin extracts instead of the highly coloured extracts hitherto obtainable. Considerable success attended the laboratory experiments, and further experiments on a commercial scale were arranged for at the Government tanning fac-

tory at Rangoon. Considerable progress was also made with a number of other investigations of which the more important were the extraction of oil from Forest oil seeds, the manufacture of Shellac, the distillation of Ngai Camphor (or *lævis borneol*) from *Blumea balsamifera*, the distillation of turpentine oil and the clarification and decolourization of Indian colophony, the bleaching of Indian Match Woods (in conjunction with the Economist's enquiry) and the distillation and examination of Khas (*Vetiveria zizanioides*) oil. Six publications were issued during the year and four more were in the press at its close.

*Forest Zoology*.—The investigation into the insects damaging *Sal* and various conifers was advanced considerably during the year and some progress was made with the enquiries regarding other insect pests. Five publications were issued during the year and seven others were sent to press but not issued until after its close.

47. *General*.—Considerable additions were made to the herbarium and to the various museum collections, and acknowledgments are due to many Forest Officers and others who have contributed specimens. In his report the President of the Research Institute also acknowledges the assistance freely given by many individual Forest officers in supplying information and in carrying out experiments in connection with some of the investigations undertaken.

## APPENDIX I.

[Vide paragraphs 2 and 3.]

## Area of Reserved and Leased Forests.

PROVINCE.	AREA IN SQUARE MILES.				REMARKS.
	At com- mencement of year.	Added in 1908-09.	Excluded in 1908-09.	At close of 1908-09.	
Bengal . . . . .	(a) 4,235	...	...	(a) 4,235	(a) Excludes 5 square miles of Reserved forests not under the management of the Forest Department.
United Provinces . . . . .	(b) 4,091	3	2	(b) 4,092	(b) Includes 157 square miles of leased forests.
Punjab . . . . .	(c) 2,176	50	14	(c) 2,212	(c) Includes 369 square miles of leased forests, but excludes 110 square miles not under the management of the Forest Department.
Burma . . . . .	22,858	806	83	23,581	(d) Excludes 6 square miles of Reserved forests not under the management of the Forest Department.
Eastern Bengal and Assam	(d) 6,550	98	337	(d) 6,311	(e) Includes 34 square miles of village forests in Benar.
Central Provinces including Berar.	(e) 21,999	(f) 30	(f) 111	(e) 21,918	(f) These changes involve a net reduction of 81 square miles. The difference between this figure and 76 square miles stated in paragraph 1 of the Chief Commissioner's Resolution has not been explained.
Coorg . . . . .	520	...	...	(g) 520	(g) Only 179 acres were added during the year.
North-West Frontier . . . . .	(h) 236	...	...	(h) 236	(h) Excludes 14 square miles of Military and Civil Reserved forests.
Ajmer . . . . .	142	...	...	142	(i) Includes 217 square miles of leased forests and excludes 1,490 square miles under the control of the Revenue Department.
Baluchistan . . . . .	280	2	...	282	(j) Includes 10 square miles added in rectification of a previous error.
Andamans . . . . .	159	2	...	161	(k) Includes 93 square miles transferred to the control of the Revenue Department.
Total, Bengal . . . . .	63,246	991	547	63,690	(l) Includes 217 square miles of leased forests and excludes 1,576 square miles under the control of the Revenue Department.
„ Madras . . . . .	18,549	150	5	18,694	
„ Bombay . . . . .	(i) 12,264	(j) 34	(k) 121	(l) 12,177	
GRAND TOTAL 1908-09	94,059	1,175	673	94,561	
„ „ 1907-08	94,029	2,640	2,610	94,059	

## APPENDIX II.

[ Vide paragraphs 1 to 3.]

Area of all forest lands.

PROVINCE.		FOREST AREA IN SQUARE MILES.				Percentage of forests to whole area of Province.	REMARKS.
Name.	Area in square miles.	Reserved.	Protected.	Un-classed State.	Total.		
Bengal . . . . .	116,115	4,235	(a) 2,781	...	7,016	6.0	(a) 16 square miles added and 28 square miles excluded during the year; excludes 599 square miles not under the control of the Forest Department.
United Provinces . . . . .	107,637	4,092	(b) 30	(c) 55	4,177	3.8	
Punjab . . . . .	97,213	2,212	(d) 5,222	(e) 1,580	9,014	9.3	(b) Excludes 9,069 square miles of district Protected forests not under the control of the Forest Department.
Barma . . . . .	176,569	23,581	...	(f) 110,868	184,449	76.1	(c) 13 square miles added during the year.
Eastern Bengal and Assam . . . . .	93,783	6,311	(g)	(h) 22,703	29,014	30.9	(d) 19 square miles excluded during the year.
Central Provinces including Berar . . . . .	100,331	21,918	...	3	21,921	21.8	(e) 1 square mile added and 143 square miles excluded during the year. Excludes 111 square miles under the control of the Civil Department.
Coorg . . . . .	1,582	520	...	...	520	32.9	
North-West Frontier . . . . .	13,184	236	(i)	...	236	1.8	(f) 4,065 square miles added and 795 square miles excluded during the year.
Ajmer . . . . .	2,646	142	(j)	6	148	5.6	(g) 4 square miles not under the management of the Forest Department.
Baluchistan . . . . .	9,403	282	...	496	778	8.3	(h) Revised figures. 542 square miles added and 530 square miles excluded during the year.
Andamans . . . . .	3,143	161	...	1,791	1,952	62.1	(i) 121 square miles of Civil Protected Forests are not shown.
Total, Bengal . . . . .	721,611	63,690	8,033	137,502	209,225	28.9	(j) There are only 115 acres of Protected forests in Ajmer.
„ Madras . . . . .	141,807	18,694	...	(k) 876	19,570	13.8	(k) Reserved lands including 158 square miles of leased forests.
„ Bombay . . . . .	122,726	12,177	(l) 802	...	12,979	10.6	(l) Includes 439 square miles of leased forests and excludes 548 square miles under control of the Revenue Department.
GRAND TOTAL, 1908-09 . . . . .	986,144	94,561	8,835	138,374	241,774	24.5	
„ „ 1907-08 . . . . .	985,938	94,059	8,853	134,837	237,809	24.2	

## APPENDIX III.

[ *Vide* paragraph 4. ]

## Progress in Forest Settlements.

PROVINCE.	AREAS ALREADY SETTLED AT THE COMMENCE- MENT OF THE YEAR.			AREAS FINALLY SETTLED DURING THE YEAR.						AREAS UNDERGOING SETTLEMENT.								
	Reserved forests.	Protected forests.	Total.	AREA.			EXPENDITURE INCURRED.			AT COMMENCE- MENT OF THE YEAR.			TAKEN IN HAND DURING THE YEAR.			EXPENDITURE INCURRED DURING THE YEAR.		
				Reserved.	Protected.	Total.	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.
	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Rs.	Rs.	Rs.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Rs.	Rs.	Rs.
Bengal . . . . .	4,240	...	4,240	...	...	...	...	...	...	15	...	15	12	...	12	85	...	85
United Provinces . . . . .	3,991	30	3,961	1	...	1	...	...	...	13	...	13	12	...	12	1,200	...	1,200
Punjab . . . . .	(a) 1,821	5,241	7,162	47	...	47	...	...	...	15	205	220	...	...	...	...	...	...
Burma . . . . .	(a) 22,809	...	22,809	892	...	892	5,735	...	5,735	4,391	...	4,391	777	...	777	26,114	...	26,114
Eastern Bengal and Assam . . . . .	6,556	...	6,556	98	...	98	...	...	...	89	...	89	15	...	15	...	...	...
Central Provinces including Berar . . . . .	18,261	...	18,261	7	...	7	...	...	...	16	...	16	3	...	3	950	...	950
Coorg . . . . .	520	...	520	...	...	...	(b) 643	...	(b) 643	...	...	...	...	...	...	...	...	...
North-West Frontier . . . . .	(c) 238	(c) 121	357	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ajmer . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan . . . . .	280	...	280	2	...	2	...	...	...	1	...	1	...	...	...	...	...	...
Andamans . . . . .	158	...	158	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...
Total Bengal . . . . .	58,916	5,392	64,308	1,019	...	1,019	6,378	...	6,378	4,543	205	4,748	819	...	819	23,319	...	23,319
.. Madras . . . . .	(a) 18,516	...	18,516	149	...	149	979	...	979	514	...	514	4	...	4	2,536	...	2,536
.. Bombay . . . . .	13,453	897	14,350	19	13	32	1,226	...	1,226	268	...	268	1	...	1	3,441	...	3,441
GRAND TOTAL, 1908-09 . . . . .	90,915	6,289	97,204	1,217	13	1,230	8,583	...	8,583	5,323	205	5,528	824	...	824	31,326	...	31,326
.. " 1907-08 . . . . .	89,197	6,310	95,507	1,768	...	1,768	7,499	...	7,499	3,122	205	3,327	3,575	...	3,575	34,188	...	34,188

(a) Corrected figures.

(b) Represents mainly the pay and travelling allowance of a surveyor engaged during the previous settlement, who was finishing off some work connected therewith.

(c) Excludes 14 square miles of Military Reserved forests.

## APPENDIX IV.

[ *Vide* paragraph 5. ]

## Demarcation and Maintenance of Boundaries.

PROVINCE.	CIRCLE.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year.	Length of boundaries not demarcated at the close of the year.	Length of natural boundaries not requiring official marks.	Total length of boundaries at the close of the year.	EXPENDITURE ON DEMARCATION DURING THE YEAR.	
									On new work.	On repairs.
		Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	R	R
Bengal	.....	218	3,310	158	(a) 3,701	...	1,028	4,729	562	1,895
United Provinces	Eastern Circle	32	1,022	1,496	2,550	9	611	3,170	...	8,572
	Western "	...	878	1,760	2,138	1	784	2,923	594	3,138
	Total	32	1,400	3,256	4,688	10	1,395	6,093	594	11,710
Punjab	.....	...	1,821	8,163	9,984	20	1,111	11,115	...	4,991
Burma	Pegu Circle	32	725	2,320	3,627	7	1,257	4,891	714	8,501
	Tenasserim Circle	260	1,162	2,628	4,050	12	684	4,696	3,387	8,449
	Northern "	190	887	2,854	3,931	69	551	4,551	1,656	7,133
	Southern "	505	329	3,836	4,670	176	642	5,488	8,452	4,021
	Total	1,037	3,103	12,138	16,278	264	3,084	19,626	14,209	28,107
Eastern Bengal and Assam.	.....	60	1,908	178	2,146	20	2,682	4,848	3,672	10,753
Central Provinces	Northern Circle	31	8,643	3,077	11,751	...	1,124	12,875	808	7,909
	Southern "	7	8,761	...	8,768	49	978	9,795	29	4,339
	Berar "	...	7,844	6,315	13,659	4	663	14,326	3,119	4,819
	Total	38	24,748	9,392	34,178	53	2,765	36,996	3,951	17,067
Coorg North-West Frontier Ajmer Baluchistan Andamans	.....	34	...	278	307	173	56	536	818	101
	.....	...	51	726	777	...	139	916	...	629
	.....	...	4	258	262	...	158	420	33	61
	.....	4	214	207	425	...	77	502	...	...
	.....	19	7	41	67	14	116	197	173	57
Total Bengal	.....	1,437	36,566	34,790	72,813	554	12,611	85,978	24,011	75,371
Madras	Northern Circle	110	3,315	5,431	8,856	135	505	9,496	6,459	3,029
	Central "	89	12,374	3,864	16,327	62	271	16,660	1,037	4,573
	Southern "	121	2,290	7,737	10,148	374	949	11,471	8,454	10,453
	Total	320	17,979	17,032	35,331	571	1,725	37,627	15,950	18,055
Bombay	Northern Circle	164	861	4,612	5,637	624	469	6,730	528	1,381
	Central "	602	3,271	10,422	14,295	4,041	1,543	19,879	3,345	1,561
	Southern "	176	669	11,592	12,437	327	630	13,394	2,523	1,406
	Sindh "	28	1,889	146	2,063	...	598	2,661	...	...
	Total	970	6,690	26,772	34,432	4,992	3,240	42,664	6,401	4,348
GRAND TOTAL 1908-09	.....	2,727	61,235	78,594	142,576	6,117	17,576	166,269	46,362	97,774
" " 1907-08	.....	2,421	55,439	83,367	141,227	10,653	17,490	169,370	57,006	89,154

N. B.—Boundaries include, beside the outer perimeter, the limits of enclosures of private and other lands within the forests, but not the limits of sub-division such as blocks, compartments and coupes.

(a) Includes 20 miles demarcated by lessees of adjacent waste lands in the Sandarbans.

## APPENDIX V.

[ *Vide* paragraphs 6 to 8.]

## Forest areas surveyed and under survey.

PROVINCE.	1"=1 MILE.		2"=1 MILE.		4"=1 MILE.		TOTAL OF DETAIL SURVEY.		Expenditure including mapping and publishing charges debitable to "Forests."
	Outturn.	Cost rate.	Outturn.	Cost rate.	Outturn.	Cost rate.	1908-09.	Total up to date.	
	Sq. miles.	Rs.	Sq. miles.	Rs.	Sq. miles.	Rs.	Sq. miles.	Sq. miles.	
Bengal . . . . .	...	...	...	...	...	...	...	2,307	...
United Provinces . . . . .	...	...	...	...	...	...	...	4,139	1,505
Punjab . . . . .	...	...	...	...	...	...	...	3,572	2,277
Burma . . . . .	...	...	297	59-0	...	...	297	14,132	(a) 5,062
Eastern Bengal and Assam . . . . .	...	...	867	99-8	...	...	367	1,947	...
Central Provinces (including Berar) . . . . .	...	...	180	55-0	(c) 451	5-8	621	19,298	576
Coorg . . . . .	...	...	58	36-9	...	...	58	96	...
North-West Frontier Province . . . . .	9	12-9	...	...	70	6-2	79	445	495
Ajmer . . . . .	...	...	...	...	...	...	...	144	...
Baluchistan . . . . .	20	8-4	44	26-5	...	...	64	107	...
Total of Bengal Presidency . . . . .	29	...	924	...	531	...	1,484	46,167	(b) 9,935
Madras . . . . .	...	...	563	92-4	...	...	563	14,915	...
Bombay . . . . .	...	...	394	19-1	(c) 205	5-2	599	12,948	...
GRAND TOTAL FOR 1908-09 . . . . .	29	...	1,881	...	736	...	2,646	74,045	(b) 9,935
" " " 1907-08 . . . . .	43	...	2,676	...	43	...	2,782	71,399	6,199

(a) Cost of Survey of the Mosit reserve of 106 square miles.

(b) Exclusive of cost borne by the Survey of India and the Forest Map Office Head Quarters charges, Rs38,943.

(c) Linear miles.

## APPENDIX VI.

[ Vide paragraphs 6 to 8.]

## Details of Forest Survey Operations.

PROVINCE.	Division or District.	NATURE OF SURVEY.						Expenditure including mapping and publishing charges debitable to "Forests."	REMARKS.
		1-INCH DETAIL SURVEY.		2-INCH DETAIL SURVEY.		4-INCH DETAIL SURVEY.			
		Area in sq. miles.	Cost rate.	Area in sq. miles.	Cost rate.	Area in sq. miles.	Cost rate.		
United Provinces.	Philbhit	...	R	...	R	...	R	166	Mapping and publishing charges.
	Eastern Circle. Kumau	...	...	...	...	...	...	15	
	Kheri	...	...	...	...	...	...	2	
	Western Circle. Naini Tal.	...	...	...	...	...	...	447	Mapping and publishing charges for the second edition of the Kumaon and Garhwal maps.
	Garhwal	...	...	...	...	...	...	767	
	Ganges	...	...	...	...	...	...	108	
TOTAL		...	...	...	...	...	...	1,505	
Panjab	Shahpur	...	...	...	...	...	...	895	Mapping and publishing charges.
	Bahawal	...	...	...	...	...	...	208	
	Jhelum	...	...	...	...	...	...	980	
	Rawalpindi	...	...	...	...	...	...	104	
TOTAL		...	...	...	...	...	...	2,277	
Burma, Northern Circle	Myittha	...	...	12	96.2	...	...	(b) (g) 5,082	(f) Includes 106 sq. miles of Mosit reserve, specially surveyed for the Forest Department. (g) Cost of 106 sq. miles of Mosit reserve, debitable to the Forest Department. (a) Linear miles of boundary traverse (sketches boundary survey). (b) Cost borne by the Survey of India. (c) Cost of preparation of Taluk maps. (d) Includes 0.8 sq. mile of Rawalpindi. (e) Mapping and publishing charges.
	Lower Chindwin.	...	...	27		...	...		
	Bhamo	...	...	175(f)	54.1	...	...	(b)	
	Mu	...	...	43		...	...		
TOTAL		...	...	40	297	59.0	...	5,082	
Eastern Bengal and Assam	Cochin	...	...	337	99.0	...	...	(b)	
Central Provinces	Berar	...	...	100	55.0	461(a)	5.5*	... (b)	
Coorg	Coorg	...	...	50	36.9	...	...	(b)	
	Frontier	Hazara	9(d)	13.9	...	...	70†	6.2	... (b)
Baluchistan	Baluchistan	20	8.4	44	26.5	...	...	(b)	
	Madras, Southern Circle	Nilgiri	...	...	357	62.4	...	...	(b)
South Malabar	...	...	201	...	...				
North Coimbatore	...	...	2	...	...				
TOTAL		...	...	3	563	62.4	...	...	
Bombay, Central Circle	West Khandesh	...	...	138	19.1	96(h)	5.2(d)	(b)	(h) Linear miles of boundary Survey (i) Cost per linear mile.
	East	...	...	261		106(h)			
TOTAL		...	...	394	19.1	205(h)	5.2	...	
Forest Map Office, Headquarters.		...	...	...	...	...	...	83,943	
GRAND TOTAL FOR 1908-09.		29	...	1,881	...	736	...	48,878(j)	(j) Includes cost of instruments (4 per cent.)
GRAND TOTAL FOR 1907-08.		43	...	2,676	...	43	...	36,854	

\* Cost per linear mile.  
† Revision survey.



## APPENDIX VII.

[Vide paragraphs 10 and 11.]

Areas brought under the control of sanctioned Working-Plans up to 30th June 1909 in the provinces outside the Madras and Bombay Presidencies.

PROVINCES.	FOREST AREA, IN SQUARE MILES.				Area for which Working-Plans prepared and sanctioned up to 30th June 1909.	Proportion of Forest area under sanctioned Working-Plans.
	Reserved.	Protected.	Unclassified State.	Total.		
1	2	3	4	5	6	7
					Sq. miles.	Per cent.
Bengal . . . . .	4,235	2,781	...	7,016	5,381	77
United Provinces . . . . .	4,092	30	55	4,177	3,780	90
Punjab . . . . .	2,212	5,222	1,580	9,014	4,012	44
Burma . . . . .	23,581	...	1,10,863	1,34,449	6,073	5
Eastern Bengal and Assam . . . . .	6,811	...	22,703	29,514	1,300	4
Central Provinces including Berar . . . . .	21,918	...	3	21,921	12,653	58
Coorg . . . . .	520	...	...	520	178	34
North-West Frontier . . . . .	236	...	...	236	236	100
Ajmer . . . . .	142	...	6	148	140	95
Baluchistan . . . . .	282	...	496	778	...	...
Andamans . . . . .	101	...	1,791	1,892	...	...
GRAND TOTAL IN 1908-09 . . . . .	63,690	8,033	1,37,503	2,09,225	34,652	17
" " " 1907-08 . . . . .	63,246	8,001	1,33,839	2,05,149	31,825	16

## APPENDIX VIII.

[Vide paragraphs 10 and 11.]

Progress in Working-Plans in the provinces outside the Madras and Bombay Presidencies during the year.

PROVINCE.	PRELIMINARY PROPOSALS SUBMITTED TO THE INSPECTOR GENERAL OF FORESTS, FOR WORKING-PLANS.		COMPLETED PLANS SUBMITTED FOR OPINION AND REMARKS OF INSPECTOR GENERAL OF FORESTS.		PLANS FINALLY SANCTIONED BY LOCAL GOVERNMENTS ON RECOMMENDATION OF THE INSPECTOR GENERAL OF FORESTS.	
	No.	Area for which prepared.	No.	Area for which prepared.	No.	Area for which prepared.
1	2	3	4	5	6	7
	No.	Sq. miles.	No.	Sq. miles.	No.	Sq. miles.
Bengal . . . . .	...	...	2	295	2	295
United Provinces { Eastern Circle . . . . .	2	829	2	630	2	367(a)
{ Western " . . . . .	...	...	...	...	...	...
Punjab . . . . .	...	...	...	...	...	...
Burma { Pegu Circle . . . . .	...	...	...	...	...	...
{ Tenasserim " . . . . .	...	...	1	269(b)	...	269
{ Northern " . . . . .	1	135	2	499	2	499
{ Southern " . . . . .	2	347	1	198	2	576
Eastern Bengal and Assam . . . . .	2	45	1	6	1	197
{ Northern Circle . . . . .	1	666	...	...	2	959
Central Provinces { Southern " . . . . .	...	...	...	...	...	...
{ Berar " . . . . .	2	2,201	...	...	...	...
Coorg . . . . .	...	...	...	...	...	...
North-West Frontier . . . . .	...	...	...	...	...	...
Ajmer . . . . .	...	...	...	...	...	...
Baluchistan . . . . .	...	...	...	...	...	...
Andamans . . . . .	...	...	...	...	...	...
TOTAL . . . . .	10	4,223	9	1,893	11	3,162

Note.—The figures in this statement have been obtained from the Conservators.

(a) Includes 338 square miles of revised plans.

(b) Revised figure.

## APPENDIX IX.

[ *Vide* paragraphs 10 and 11.]

## Comparative statement of progress made in Working-Plans.

PROVINCE.	AREAS FOR WHICH WORKING-PLANS HAVE BEEN COMPLETED AND SANCTIONED.		AREAS FOR WHICH WORKING-PLANS ARE BEING COMPILED.		Areas for which Working- Plans have not yet been taken in hand.	Total forest area, as in Appendix II.	REMARKS.
	At com- mencement of the year.	During the year.	At com- mencement of the year.	Taken in hand during the year.			
1	2	3	4	5	6	7	8
	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	
Bengal . . . . .	(a) 5,086*	295	..	326	1,309	7,010	
United Provinces	{ Eastern Circle . . . . .	1,815	(b) 387	(c) 834	..	323	2,167
	{ Western " . . . . .	(d) 1,936	..	..	..	74	2,010
Punjab . . . . .	(d) 4,012	..	362	..	4,640	9,014	(a) Excludes 5 square miles of "other Reserves".
Burma	{ Pegu Circle . . . . .	1,672	..	131	29,987	31,740	
	{ Tenasserim Circle . . . . .	1,788	(d) 289	..	29,576	31,658	
	{ Northern " . . . . .	88	499	493	(e) 366	81,347	32,705
	{ Southern " . . . . .	2,131	(d) 576	(d) 408	502	34,729	38,316
Eastern Bengal and Assam . . . . .	1,103	197	164	207	27,343	29,014	(b) Including 338 square miles for which a revised plan was sanctioned.
Central Provinces	{ Northern Circle . . . . .	(d) 3,907	959	..	..	2,499	7,865
	{ Southern " . . . . .	5,597	..	..	..	1,950	7,547
	{ Berar " . . . . .	2,189	..	..	..	4,820	7,000
Coorg . . . . .	178	..	..	..	342	520	(c) Including 334 square miles for which a revised plan is under preparation.
North-West Frontier . . . . .	236	..	..	..	..	236	
Ajmer . . . . .	140	..	..	..	8	148	
Baluchistan . . . . .	..	..	..	..	778	778	(d) Revised figures.
Andamans . . . . .	..	..	(f) 317	..	1,985	1,952	
TOTAL BENGAL	31,828	3,162	2,078	1,557	171,310	209,225	
Madras	{ Northern Circle . . . . .	(d) 2,136	..	(d) 948	121	2,715	5,970
	{ Central " . . . . .	(d) 2,456	269	1,782	682	2,849	5,048
	{ Southern " . . . . .	(d) 2,270	(d) 116	(d) 818	..	2,948	5,552
TOTAL	6,922	285	3,048	808	8,512	19,570	
Bombay	{ Northern Circle . . . . .	(d) 1,788	54	..	..	673	2,525
	{ Central " . . . . .	2,332	94	416	1	2,179	5,022
	{ Southern " . . . . .	(d) 946	186	(d) 107	55	3,028	4,322
	{ Sindh " . . . . .	1,032	..	..	..	78	1,110
TOTAL	6,098	344	623	56	5,958	12,979	(f) A working-plan for this area was compiled during 1906-07, but has not yet been sanctioned.

\* No explanation for the decrease of 2 square miles as compared with the figures of the last year is forthcoming.

## APPENDIX X.

[Vide paragraphs 12 to 14.]

## Expenditure on Communications and Buildings.

PROVINCE.	NEW WORK.		REPAIRS.		Other Works.	Total.
	Buildings.	Roads.	Buildings.	Roads.		
	₹	₹	₹	₹	₹	₹
Bengal . . . . .	10,276	16,401	10,578	10,360	2,461	50,076
United Provinces . . . . .	43,676	14,594	30,074	47,665	13,689	1,49,698
Punjab . . . . .	21,666	31,826	9,138	22,803	2,101	87,534
Burma . . . . .	80,718(a)	1,11,685	50,039	22,706	19,588	2,84,736
Eastern Bengal and Assam . . . . .	45,863	26,091	23,692	17,754	9,214	1,22,619
Central Provinces including Berar . . . . .	79,040	66,820(b)	26,547	22,537	87,579	2,82,523
Coorg . . . . .	601	70	841	1,578	84	3,174
North-West Frontier . . . . .	1,316	1,386	1,015	678	310	4,655
Ajmer . . . . .	2,084	195	29	339	622	3,269
Baluchistan . . . . .	...	...	136	...	3,670	3,806
Andamans . . . . .	2,180	...	694	1,741	...	4,615
Total, Bengal . . . . .	2,87,425	2,69,018	1,52,783	1,48,161	1,39,318	9,96,705
„ Madras . . . . .	94,661	42,630	40,372	39,232	10,063	2,26,958
„ Bombay . . . . .	63,187	11,912	15,129	29,227	26,606(c)	1,46,062
GRAND TOTAL 1908-09 . . . . .	4,45,273	3,23,560	2,08,284	2,16,620	1,75,987	13,69,724
„ „ 1907-08 . . . . .	4,64,060	3,48,394	1,81,440	2,01,237	1,75,692	13,70,823

(a) Excludes ₹8,263 paid in wages of rest-house darwans in the Tenasserim District.

(b) Includes ₹5,739, being the amount of contribution paid by the District Board of Baluchistan.

(c) Excludes ₹717 expended in Public Works accounts.

## APPENDIX XI.

[ *Vide* paragraphs 15 and 16. ]

## Breaches of Forest Rules.

PROVINCE.	Number of cases decided by the courts.	Number of cases com- pounded.	Total.	Percentage of convictions to total number of cases decided by the courts.	
Bengal . . . . .	254	1,846	2,100	85.8	
United Provinces . . . . .	150	1,514	(a) 1,664	82.6	
Punjab . . . . .	767	5,793	6,560	84.7	
Burma . . . . .	1,081	2,435	3,516	84.0	
Eastern Bengal and Assam . . . . .	228	570	798	75.9	
Central Provinces including Berar . . . . .	400	7,310	7,710	79.7	
Coorg . . . . .	9	40	49	55.5	
North-West Frontier . . . . .	91	742	833	79.1	
Ajmer . . . . .	33	329	362	90.9	
Baluchistan . . . . .	53	5	58	90.6	
Andamans . . . . .	16	...	16	18.7	
Total Bengal . . . . .	3 082	20,584	23,666	82.7	
„ Madras . . . . .	(b) 5,295	(c) 16,634	21,929	87.6	
„ Bombay . . . . .	1,114	15,253	16,367	83.4	
*GRAND TOTAL {	1908-09 . . . . .	9,491	52,471	61,962	85.6
	1907-08 . . . . .	8,749	50,082	58,831	86.2
	1906-07 . . . . .	10,377	47,481	57,858	85.9
	1905-06 . . . . .	11,160	46,564	57,724	88.3

\* Includes cases which were pending at the close of the previous year.

(a) Excludes breaches of rules in District Forests.

(b) and (c) Excludes 557 and 1,379 cases respectively withdrawn under the orders of the District Forest Officers.

# APPENDIX XII.

[Vide paragraphs 15 and 16.]

## Breaches of Forest Rules.

PROVINCE.	CASES TAKEN INTO COURT.				CONFOUNDED CASES.				CASES IN WHICH THE OFFENDERS REMAINED UNDETECTED.				TOTAL OF EACH CLASS OF OFFENCE.				
	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Grand total of cases.
Bengal . . . . .	21	158	26	44	7	1,211	433	152	65	8	...	...	43	1,378	459	193	2,126
United Provinces . . . . .	15	46	30	34	28	783	665	52	38	48	2	5	77	880	697	81	1,745
Punjab . . . . .	28	475	202	99	20	2,733	2,975	58	130	23	8	1	178	3,231	3,185	158	6,752
Barma . . . . .	19	909	57	93	19	1,503	109	870	66	91	...	2	104	2,500	160	965	3,735
Eastern Bengal and Assam . . . . .	5	145	22	66	5	331	99	132	65	2	...	...	75	481	121	198	875
Central Provinces including Berar . . . . .	37	198	111	50	63	3,498	3,541	282	173	247	18	4	273	3,913	3,070	336	8,222
Coorg . . . . .	4	...	...	3	...	7	9	24	...	...	...	...	4	7	9	27	47
North-West Frontier . . . . .	86	82	18	3	7	397	205	23	10	13	4	...	103	492	327	36	958
Ajmer . . . . .	1	16	16	...	2	177	149	1	5	...	...	...	8	183	165	1	367
Balachistan . . . . .	1	27	2	1	...	4	1	...	6	...	...	...	7	41	3	1	52
Andamans . . . . .	...	8	...	...	...	...	...	...	...	...	...	...	...	8	...	...	8
Total Bengal . . . . .	217	2,074	481	393	149	10,647	8,286	1,601	556	433	23	12	922	13,154	8,802	2,009	24,887
" Madras . . . . .	77	3,434	1,697	353	27	10,790	6,413	781	491	582	731	48	605	14,602	8,874	1,185	25,470
" Bombay . . . . .	121	647	268	97	158	6,465	8,023	900	1,809	2,166	103	83	2,088	3,278	8,497	1,060	20,913
*GRAND TOTAL, 1903-04 . . . . .	415	6,155	2,519	843	344	27,902	22,752	3,288	2,856	3,181	872	143	3,615	37,238	26,173	4,274	71,300
" " 1907-08 . . . . .	440	6,203	2,393	866	400	25,081	22,193	3,512	3,839	3,177	427	150	4,079	35,470	25,016	4,528	69,893
" " 1906-07 . . . . .	406	6,181	2,768	1,092	369	23,631	21,451	4,658	3,363	3,208	587	153	4,138	33,296	24,809	5,219	67,458
" " 1905-06 . . . . .	421	6,864	3,261	1,189	437	23,070	20,711	3,405	3,402	2,971	672	177	4,320	33,911	23,614	4,771	67,645

\* Includes only the new cases of the year; not those which were left pending at the close of the previous year.

## APPENDIX XV.

[ Vide paragraphs 19 and 20. ]

## Protection from cattle.

PROVINCE.	Circles.	GRAZED ON PAYMENT, NUMBER OF ANIMALS.										GRAZED FREE, NUMBER OF ANIMALS.									
		AT FULL RATES.					AT PRIVILEGED RATES.					BY RIGHT UNDER SETTLEMENT.					DURING REIGN OF GOVERNMENT OR OTHERWISE THAN UNDER SETTLEMENT.				
		Buffaloes.	Cows and bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and bullocks.	Goats and Sheep.	Camels.	Other animals.
Bengal	...	6,843	83,555	5,261	...	32	9,532	153,424	12,619	...	540	21,000	63,000	21,000	...	...	117	290	130	...	1
United Provinces	Eastern	41,422	124,733	1,752	2,222	1,488	30,325	137,007	42,005	...	751	15,209	72,889	13,313	...	1,198	3,007	14,297	973	...	803
	Western	23,456	52,119	24,531	1,756	10,588	5,000	24,872	61,764	...	538	9,213	65,301	33,174	...	21	575	8,855	36	...	...
Total	...	65,880	186,852	26,286	3,979	12,077	35,325	161,879	103,769	...	1,289	24,419	138,200	52,517	...	1,219	2,582	23,152	1,009	...	809
Panjab	...	17,148	39,978	357,947	10,171	1,564	50	6,273	222,681	5	75	145,680	646,208	690,200	396	13,732	42	756	63	3,915	48
	Persa	3,807	1,052	...	...	1	...	...	...	...	...	21,305	43,495	...	...	1	...	...	...	...	27
Barma	Central	54	176	...	...	...	...	...	...	...	...	4,797	44,805	...	...	9	...	...	...	...	...
	Northern	257	...	...	...	...	70	...	...	...	...	22,836	2,559	...	...	...	824	...	...	...	904
Total	...	196	19,537	2,382	...	16	...	...	...	...	...	2,056	60,706	...	...	...	382	...	...	...	810
Eastern Bengal and Assam	...	4,316	17,805	2,382	...	17	70	...	...	...	...	51,054	171,515	...	...	10	1,206	...	...	...	1,191
	...	52,116	13,764	48	...	573	...	81,012	...	...	...	60	...	...	...	...	63,004	375,929	72,477	...	568
Central Provinces	Northern	207,931	1,005,100	92,299	...	3,549	...	...	...	...	...	...	...	...	...	...	1,912	28,331	1,019	...	...
	Southern	72,752	361,167	122,338	...	467	22,537	380,613	17,985	...	59	...	...	...	...	...	616	11,663	44	...	18
Total	...	175,465	917,647	442,587	141	4,771	20,155	141,335	6,090	...	394	...	105,723	...	...	...	118	15,915	1,091	...	89
Coorg	...	456,148	2,719,914	637,224	141	7,807	42,432	521,962	23,685	...	443	...	105,723	...	...	...	2,706	56,430	2,154	...	107
	...	341	2,373	...	...	...	...	...	...	...	...	...	256	...	...	...	...	...	...	...	...
North-West Frontier	...	922	787	53	...	63	...	...	...	...	...	370	740	...	...	...	1,402	7,058	...	...	15
	...	99	1,332	...	...	...	1,517	8,040	...	...	...	...	...	...	...	...	199	1,130	...	...	...
Ajmer	...	320	2,245	269	...	12	...	...	...	...	...	...	1,307	21,959	1	662	...	...	...	...	...
Total Bengal	1908-09	604,148	2,675,283	1,049,471	14,280	22,145	88,990	835,616	272,797	5	2,347	242,583	1,126,977	785,776	397	15,623	72,250	469,804	75,333	3,815	2,638
	1907-08	499,880	2,249,398	1,080,282	19,568	31,220	112,318	692,518	430,050	119	3,157	236,446	1,121,899	795,378	283	14,836	223,380	1,150,711	131,649	4,451	4,158
Madras	Northern	83,332	437,977	599,367	...	...	6,417	35,542	7,340	...	...	...	2,685	5,505	...	...	4,462	38,900	...	...	...
	Central	56,413	920,482	1,360,892	...	...	...	236	791	...	...	...	617	...	...	...	1,140	3,213	672	...	...
Total	...	31,718	354,565	180,065	...	177	...	418	...	...	...	1,189	...	...	...	...	...	...	...	...	...
Bombay	1908-09	171,423	1,713,023	2,133,323	...	177	6,417	36,196	8,131	...	...	1,189	3,302	5,505	...	...	5,602	42,113	672	...	...
	1907-08	163,267	1,663,364	2,116,140	...	323	7,258	39,200	7,893	...	...	2,345	3,269	5,505	...	...	2,739	33,867	355	...	...
Sindh	Northern	1,103	3,506	...	...	31	5,183	78,303	61	...	278	...	...	...	...	...	49,841	289,441	...	...	...
	Central	15,971	137,858	102,210	...	2,354	61,295	487,152	183,065	...	3,250	10,979	65,303	...	...	1,249	...	...	...	...	...
Total	...	9,404	4,023	...	...	...	...	352,877	2,915	...	57	...	...	...	...	...	...	...	...	...	...
Total	1908-09	25,156	1150,089	154,124	1,000	2,573	67,366	1013,892	194,227	45	3,619	13,905	108,889	91	4	1,362	50,289	289,712	749	785	2,594
	1907-08	20,116	43,380	50,762	1,340	1,723	103,101	655,577	152,415	75	2,485	7,176	29,821	91	2	386	53,651	282,804	777	792	1,554
Grand Total	1908-09	860,729	4,547,396	3,342,918	15,331	21,895	182,779	1,891,704	575,115	50	5,965	257,681	1,246,268	791,327	401	16,985	128,149	806,628	77,254	4,701	5,282
	1907-08	632,273	3,555,142	2,247,232	20,928	33,266	225,677	1,687,295	590,358	191	5,632	244,896	1,135,089	800,972	285	15,222	230,770	1,467,832	132,781	5,212	5,912

\* Includes cattle grazing at enhanced or special rates.

† Includes buffaloes in the Southern Circle.

## APPENDIX XVI.

[ *Vide* paragraph 23. ]

## Area of Plantations and the cost of the year's work.

PROVINCE.	AREA IN ACRES.												Cost of operations during the year.
	AT COMMENCEMENT OF THE YEAR.			ADDED DURING THE YEAR.			EXCLUDED DURING THE YEAR.			BALANCE AT CLOSE OF THE YEAR.			
	Regular Plantations.	Tann- Gyas.	Total.	Regular Plantations.	Tann- Gyas.	Total.	Regular Plantations.	Tann- Gyas.	Total.	Regular Plantations.	Tann- Gyas.	Total.	
Bengal . . . .	764	85	849	168	...	168	...	...	...	982	85	1,017	1,478
United Provinces . .	4,803	...	4,803	528	...	628	...	...	...	5,331	...	5,331	4,552
Punjab . . . .	507	...	607	...	...	...	507	...	507	...	...	...	...
Burma . . . .	5,234	(a) 74,928	(a) 80,162	...	707	707	90	801	891	5,144	75,334	80,478	75,659
Eastern Bengal and Assam.	3,858	7	3,865	48	...	48	...	...	...	3,906	7	3,913	4,767
Central Provinces including Berar.	1,805	4,034	5,389	278	1,613	1,891	109	1,702	1,811	1,474	3,995	5,469	1,866
Coorg. . . .	2,062	1,221	3,283	...	159	159	...	...	...	2,052	1,380	3,432	2,229
North-West Frontier .	...	...	...	...	...	...	...	...	...	...	...	...	...
Ajmer . . . .	64	...	64	6	...	6	...	...	...	70	...	70	1,003
Baluchistan . .	33	...	33	...	...	...	...	...	...	33	...	33	72
Andamans . . . .	763	832	1,595	17	263	280	...	...	...	780	1,095	1,875	6,920
Total Bengal . . . .	19,393	81,157	100,550	1,015	2,742	3,757	706	2,008	2,709	19,732	81,896	101,628	97,945
Madras . . . .	(a) 25,139	(a) 2,227	(a) 27,366	2,193	...	2,193	222	...	222	27,110	2,227	29,337	119,013
Bombay . . . .	(b) 13,217	(b) ...	(b) 13,217	1,387	...	1,387	2,666	...	2,666	11,938	...	11,938	18,845
GRAND TOTAL { 1908-09	(a) 57,740	(a) 88,384	(a) 141,133	4,625	2,742	7,367	3,594	2,008	5,597	58,780	84,123	142,903	235,803
{ 1907-08	68,955	81,960	140,921	5,496	2,685	8,081	3,206	1,380	4,586	61,245	83,171	144,416	236,966

(a) Revised figures.

(b) Revised figures the difference being chiefly due to the transfer of 3,151 acres to "cultural operations".



## APPENDIX XVII.

[Vide paragraph 31.]

## Outturn of Forest Produce.

## I

PROVINCE.	RESERVED FORESTS.			PROTECTED FORESTS.			UNCLASSIFIED FORESTS.			AVERAGE OUTTURN PER SQUARE MILE.								
										RESERVED FORESTS.			PROTECTED FORESTS.			UNCLASSIFIED FORESTS.		
	Timber and Fuel.	Bamboos.	Minor Produce.	Timber and Fuel.	Bamboos.	Minor Produce.	Timber and Fuel.	Bamboos.	Minor Produce.	Timber and Fuel.	Bamboos.	Minor Produce.	Timber and Fuel.	Bamboos.	Minor Produce.	Timber and Fuel.	Bamboos.	Minor Produce.
	C. ft.	No.	R.	C. ft.	No.	R.	C. ft.	No.	R.	C. ft.	No.	R.	C. ft.	No.	R.	C. ft.	No.	R.
Bengal . . . . .	19,605,217	8,800,682	1,68,272	17,721,166	4,577,873	1,33,410	(a) 7,788	...	...	4,630	1,559	40	6,372	1,616	49	...	...	...
United Provinces . . . . .	14,215,272	11,407,547	5,00,641	832,947	7,302	3,582	33,415	...	3,013	3,474	2,788	122	12,008	233	118	1,638	...	55
Punjab . . . . .	6,789,537	236,261	2,61,396	17,301,142	61,804	2,28,168	1,151,206	17,227	61,606	3,069	107	118	3,294	12	44	729	11	29
Burma . . . . .	12,111,825	19,396,000	2,13,430	...	...	...	33,430,409	47,897,000	2,40,407	514	822	9	...	...	...	302	432	2
Eastern Bengal and Assam . . . . .	6,414,827	11,881,747	1,13,558	...	...	...	11,882,209	12,016,031	6,28,401	1,016	1,833	18	...	...	...	523	523	28
Central Provinces including Berar . . . . .	21,105,855	19,958,925	13,15,621	...	...	...	...	...	...	863	811	60	...	...	...	...	...	...
Coorg . . . . .	159,701	85,150	19,553	141,030	35,300	...	...	...	...	307	164	38	...	...	...	...	...	...
North-West Frontier . . . . .	810,305	...	13,351	...	...	...	...	...	...	3,434	...	56	...	...	...	...	...	...
Ajmer . . . . .	583,680	...	12,792	...	...	83	...	...	...	4,110	...	90	...	...	...	...	...	...
Baluchistan . . . . .	62,866	...	17,635	...	...	...	310,025	...	27	292	...	63	...	...	...	686	...	...
Andamans . . . . .	481,745	383,716	2,001	...	...	...	607,686	613,101	1,610	2,682	2,383	12	...	...	...	510	520	1
TOTAL, BENGAL, 1909-09 . . . . .	82,810,130	69,952,618	20,38,450	35,427,185	4,682,369	3,68,273	47,872,736	60,573,359	9,35,186	1,292	1,100	41	4,410	583	42	319	410	7
" " 1907-09 . . . . .	87,285,827	73,128,715	29,73,372	35,622,194	4,675,031	3,91,731	46,616,052	55,332,022	8,53,016	1,876	1,153	47	4,417	667	48	318	413	6

(a) This outturn from unclassified forests is credited to the Singhbhum Division. There are however no unclassified forests in Bengal.

## II

PERSIDENCY.	Total area under control of Forest Department.	Timber and Fuel.	Bamboos.	Minor produce.	AVERAGE OUTTURN PER SQUARE MILE.			
					Timber and Fuel.	Bamboos.	Minor produce.	
	Sq. m.	C. ft.	No.	R	C. ft.	No.	R	
Bengal . . . . .	209,225	166,610,113	135,208,376	39,41,889	792	646	19	
Madras . . . . .	19,570	24,415,574	32,001,730	16,79,591	1,218	1,635	81	
Bombay . . . . .	12,979	43,010,178	13,065,915	14,17,333	3,237	1,007	109	
GRAND TOTAL {	1908-09 .	241,774	282,036,865	180,276,021	69,38,743	960	746	29
	1907-08 .	237,809	284,982,123	193,427,023	71,89,241	996	813	30

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APPENDIX XVIII.

Forest Produce removed by different Agencies.

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## APPENDIX

[ *Vide* para

## Forest Produce removed

PROVINCE.	TIMBER.				FUEL.			
	Removed by Government.	Removed by Purchasers.	Removed by Free-grantees.	Removed by Right-holders.	Removed by Government.	Removed by Purchasers.	Removed by Free-grantees.	Removed by Right-holders.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
Bengal . . . . .	16,840	5,271,212	10,160	175,200	20,289	18,568,967	530	13,456,954
United Provinces . . . . .	57,854	4,108,650	63,260	811,550	587,084	6,023,362	308,727	3,211,129
Punjab . . . . .	118,016	1,889,390	27,300	701,843	1,140,182	2,101,938	100,120	19,217,592
Burma . . . . .	3,087,141	26,289,528	699,023	809,975	201,012	13,628,491	87,876	739,723
Eastern Bengal and Assam . . . . .	557,079	5,890,425	538,105	...	22,094	5,022,147	4,305,864	1,460,690
Central Provinces including Berar . . . . .	841,280	3,493,543	110,183	43,609	1,946,571	12,078,742	1,037,483	1,545,490
Ooorg . . . . .	118,734	114,127	...	...	18,750	55,020	...	...
North-West Frontier . . . . .	71,635	841,648	1,483	...	165,614	182,439	12,456	34,980
Ajmer . . . . .	29	3,038	...	17,025	71,306	480,568	11,514	290
Baluchistan . . . . .	1,183	9,278	9,841	...	72,921	323,184	984	...
Andamans . . . . .	340,584	46,695	32,055	63,904	622,700	20,400	256,440	16,653
Total Bengal { 1908-09 . . . . .	5,205,434	46,657,545	1,500,477	2,183,605	3,954,423	60,295,223	6,120,091	39,683,411
{ 1907-08 . . . . .	5,083,519	46,083,772	1,553,676	2,072,809	4,029,112	61,038,014	7,013,819	40,848,922
Madras . . . . .	614,410	2,506,889	174,721	78,353	12,085,902	8,777,887	22,700	154,694
Bombay . . . . .	(a) 933,413	(b) 4,109,669	139,140	(c) 862,228	4,053,968	25,165,620	14,089	(c) 7,287,051
GRAND TOTAL { 1908-09 . . . . .	6,753,266	53,274,103	1,814,338	2,563,187	20,104,293	94,233,730	6,157,792	47,125,156
{ 1907-08 . . . . .	7,823,674	52,965,071	2,112,544	2,464,266	21,546,742	92,015,666	7,653,314	48,400,846

(a) Excludes 393 trees, 185 Khandies of billets and 11 heaps of sandalwood.

(b) Excludes 2 sandalwood trees.

## XVIII.

graph 28.]

by different agencies.

BAMBOOS.				MINOR PRODUCTS INCLUDING GRASS AND GRAZING.				PROVINCE.
Removed by Government.	Removed by Purchasers.	Removed by Free-grantees.	Removed by Right-holders.	Removed by Government.	Removed by Purchasers.	Removed by Free-grantees.	Removed by Right-holders.	
No.	No.	No.	No.	R	R	R	R	
423,806	6,735,349	19,400	4,000,000	774	1,00,268	729	1,12,911	Bengal.
27,734	11,157,359	4,075	225,681	1,02,970	3,22,612	25,613	56,041	United Provinces.
40,007	273,955	...	450	8,710	1,97,258	662	8,44,210	Punjab.
10,000	61,311,000	32,000	5,910,000	12,520	2,59,253	13,118	1,00,041	Burma.
19,310	19,582,168	1,498,900	2,800,400	37,915	2,83,365	3,09,004	21,018	Eastern Bengal and Assam.
387,305	18,665,825	389,995	615,400	35,738	12,22,401	18,579	38,903	Central Provinces including Berar.
...	120,540	...	...	...	10,553	...	...	Coorg.
...	...	...	...	408	4,635	7,532	726	North-West Frontier.
...	...	...	...	1,706	2,162	249	8,818	Ajmer.
...	...	...	...	11	1,227	342	16,332	Baluchistan.
...	...	...	...	428	270	2,724	198	Andamans.
1,100	72,050	427,400	526,267					
910,162	117,818,246	2,371,770	14,106,198	2,01,240	23,02,694	4,69,537	7,68,228	} Total Bengal { 1908-09. 1907-08.
1,143,076	115,736,834	2,657,596	13,499,275	2,10,350	21,67,850	7,55,578	7,81,341	
6,111,168	25,725,115	152,254	13,193	51,460	14,81,836	1,650	41,575	Madras.
68,460	6,710,963	21,805	(c) 6,261,687	39,735	6,05,763	7,872	(d) 7,63,963	Bombay.
7,069,790	150,254,324	2,548,829	20,363,078	2,95,433	45,00,463	4,79,039	15,73,706	} GRAND TOTAL { 1908-09. 1907-08.
10,497,291	157,781,963	2,967,151	22,160,618	3,32,571	46,53,780	7,68,135	13,84,749	

(c) Compiled partly from the reports and partly from Form G2, as the produce extracted is not invariably included in the latter.

(d) Compiled from Form G3 only.

## APPENDIX XIX.

[Vide paragraphs 33 to 39.]

## Comparative Statement of Revenue and Expenditure—Financial year 1908-09.

PROVINCE.	REVENUE.		SURPLUS.		DEFICIT.		Proportion of Surplus to Gross Revenue.	Net Revenue per square mile of land under control of Forest Department.
	1908-09.	Average for preceding 5 years.	1908-09.	Average for preceding 5 years.	1908-09.	Average for preceding 5 years.		
	₹	₹	₹	₹	₹	₹	Per cent.	₹
Imperial . . . . .	8,189	5,229	...	...	95,994	85,140	...	...
Bengal . . . . .	11,84,845	11,23,009	6,00,864	4,56,532	...	...	50·7	85
United Provinces . . . . .	21,75,406	24,04,720	9,52,970	11,28,847	...	...	43·8	228
Punjab . . . . .	12,88,792	16,87,325	4,87,165	5,86,619	...	...	33·9	43
Burma . . . . .	91,92,082	92,06,934	54,74,785	56,17,198	...	...	59·5	40
Eastern Bengal and Assam . . . . .	14,46,368	10,69,709	5,55,019	4,63,452	...	...	38·3	18
Central Provinces and Berar . . . . .	20,73,162	22,30,332	3,24,855	8,63,378	...	...	15·6	15
Coorg . . . . .	2,24,330	1,84,640	1,24,735	1,38,754	...	...	55·6	240
North-West Frontier . . . . .	1,22,782	1,48,611	41,369	70,088	...	...	33·6	175
Ajmer . . . . .	27,615	18,876	7,689	1,857	...	...	27·9	52
Baluchistan . . . . .	23,303	21,685	...	...	13,381	4,254	...	...
Andamans . . . . .	2,02,018	5,06,907	21,077	2,13,119	...	...	10·4	11
Imperial Forest College and Research Institute.	4,680	4,078	...	...	1,78,511	95,313	...	...
Forest Surveys . . . . .	...	88	...	...	39,128	29,845	...	...
Total Bengal . . . . .	1,79,78,524	1,86,62,192	82,13,624	92,71,490	...	...	45·7	40
Madras . . . . .	38,90,919	31,27,809	9,73,658	8,74,780	...	...	25·0	50
Bombay . . . . .	85,87,356	22,65,150	15,48,483	13,14,861	...	...	43·0	120
GRAND TOTAL { 1908-09 . . . . .	2,64,56,799	2,60,55,156	1,07,30,765	1,14,61,131	...	...	42·1	44
{ 1907-08 . . . . .	2,68,62,979	2,37,76,863	1,13,50,046	1,08,85,668	...	...	43·8	47

## APPENDIX XX.

[Vide paragraph 38.]

Estimated value of Forest Produce given away free or at reduced rates.

PROVINCE.	Timber.	Fuel.	Bamboos.	Minor Produce.	Grass and Grazing.	TOTAL.
	₹	₹	₹	₹	₹	₹
Bengal . . . . .	9,154	58,700	4,937	60,607	45,068	1,84,461
United Provinces . . . . .	58,361	58,240	1,886	3,990	88,581	2,00,558
Punjab . . . . .	49,290	6,02,454	2	3,22,626	22,576	9,96,948
Burma . . . . .	1,71,755	12,950	38,109	39,763	1,41,800	4,04,377
Eastern Bengal and Assam . . . . .	32,540	70,999	11,418	2,15,996	1,69,977	5,00,980
Central Provinces including Berar . . . . .	10,129	50,761	2,019	40,607	35,941	1,39,457
Coorg . . . . .	...	...	...	...	...	...
North-West Frontier . . . . .	720	1,160	...	100	8,158	10,138
Ajmer . . . . .	2,128	185	...	9,058	24	11,395
Baluchistan . . . . .	900	50	...	342	16,332	17,624
Andamans . . . . .	(a) 9,304	7,280	(b) 277	(c) 2,714	...	19,575
Total Bengal . . . . .	3,44,281	8,57,779	58,148	7,01,803	5,23,452	24,85,468
„ Madras . . . . .	51,012	5,337	1,050	40,437	6,278	1,04,120
„ Bombay . . . . .	1,00,650	7,83,009	41,047	2,60,920	8,20,981	20,07,867
GRAND TOTAL { 1908-09 . . . . .	4,95,943	10,46,785	1,00,851	10,03,160	13,50,711	45,97,450
{ 1907-08 . . . . .	5,12,037	16,42,333	2,37,292	6,76,361	18,85,296	49,53,319

(a) Excludes Rs444 the value of free samples of Andaman timber sent to various places.

(b) „ Rs329 the value of bamboos removed by district officers.

(c) „ Rs108 the value of minor produce „ „

## APPENDIX XXI.

[ *Vide* paragraph 39.]

## Details of Revenue and Expenditure.

		R	
Gross Receipts .	(a) Wood . . . . .		1,92,15,497
	(b) Minor forest produce . . . . .		20,77,826
	(c) Forest stamps and communication fees for forest produce . . . . .		7,14,639
	(d) Grazing . . . . .		22,04,942
	(e) Revenue from forests not managed by Government . . . . .		3,72,347
	(f) Miscellaneous . . . . .		8,71,548
TOTAL REVENUE .			2,54,56,799
Expenditure .	(a) Administration.	(i) Superior Staff . . . . .	27,66,630
		(ii) Exchange compensation allowance. . . . .	3,601
		(iii) Subordinate Staff (including Rangers, Foresters and Guards). . . . .	24,76,158
		(iv) Office Establishments (including Contingencies). . . . .	15,04,247
	A Recurring .	(1) Extraction . . . . .	34,60,429
		(2) Roads and Buildings . . . . .	14,19,511
		(3) Fire-protection . . . . .	6,54,221
		(4) Cultural operations . . . . .	6,62,091
		(b) Working . . . . .	4,66,013
		(5) Live-stock, stores and plant. . . . .	72,711
		(6) Working-Plans . . . . .	4,21,550
		(7) Rent for leased forests . . . . .	2,65,246
	(8) Miscellaneous . . . . .	32,902	
	(c) Expenditure on realization of revenue from forests not managed by Government. . . . .		1,83,191
	(d) Forest Science and Education (including all "A" and "B" charges of Forest School). . . . .		
	Total .		1,43,88,501
	B Extraordinary	(e) Forest Settlement . . . . .	67,544
(f) Forest Surveys . . . . .		1,15,964	
(g) Forests Demarcation . . . . .		1,54,025	
Total .		2,37,533	
GRAND TOTAL EXPENDITURE .			1,47,26,034
Net Revenue .			1,07,30,765

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**APPENDIX XXII.**

**Summary of Revenue and Expenditure of the Forest Department in India  
for the financial year 1908-09.**

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## Summary of Revenue and Expenditure of the Forest

BUDGET HEADS.	(a) Imperial.	Bengal.	United Provinces.	Punjab.	Burma (Upper and Lower.)	Eastern Bengal and Assam.	Central Provinces including Berar.	Coorg.	North-West Frontier Province.
	R	R	R	R	R	R	R	R	R
<b>REVENUE.</b>									
I.—Timber and other produce removed from the forests by Government agency.	819	17,069	1,48,663	5,18,140	28,88,868	3,19,935	1,46,070	1,82,666	45,257
II.—Timber and other produce removed from the forests by consumers or purchasers.	7,670	11,24,300	10,30,709	6,66,259	57,54,267	9,17,886	18,23,739	33,880	68,673
III.—Drift and waif wood and confiscated forest produce.	...	1,937	12,427	31,699	2,04,240	35,928	1,780	...	23
IV.—Revenue from forests not managed by Government.	...	...	14,008	1,804	2,27,132	1,03,883	707	...	3,494
V.—Miscellaneous . . . . .	...	40,873	69,702	51,890	1,17,519	68,736	1,00,860	7,778	7,365
<b>TOTAL REVENUE</b>	<b>8,189</b>	<b>11,84,845</b>	<b>21,76,406</b>	<b>12,88,792</b>	<b>91,92,032</b>	<b>14,45,389</b>	<b>20,78,163</b>	<b>2,24,830</b>	<b>1,22,762</b>
<b>EXPENDITURE.</b>									
<b>A.—CONSERVANCY AND WORKS.</b>									
I.—Timber and other produce removed from the forests by Government agency.	...	8,073	1,11,718	1,12,747	9,48,996	1,56,243	61,157	16,905	25,191
II.—Timber and other produce removed from the forests by consumers or purchasers.	...	94,775	43,132	5,433	99,358	18,477	1,14,629	...	235
III.—Drift and waif wood and confiscated forest produce.	...	804	4,064	7,818	1,10,891	1,448	21	...	7
IV.—Revenue from forests not managed by Government.	...	...	3,690	...	3,553	23,497	...	...	...
V.—Rent of leased forests and payments to shareholders in forests managed by Government.	...	5,227	1,49,081	1,72,413	—	46,517	...	...	6,196
VI.—Live-stock, stores, tools and plant.	...	41,853	29,915	10,420	93,474	27,350	40,980	8,067	1,442
VII.—Communications and buildings .	...	54,346	1,78,010	87,881	2,89,286	1,16,147	3,25,657	3,059	5,266
VIII.—Demarcation, improvement, and extension of forests.	(b) 532	70,718	1,46,769	61,447	5,29,016	64,062	2,02,670	12,769	1,788
IX.—Miscellaneous . . . . .	...	4,080	22,297	18,692	37,671	7,608	21,406	1,091	2,005
<b>Total A.—Conservancy and Works</b>	<b>532</b>	<b>2,79,884</b>	<b>6,93,677</b>	<b>4,88,851</b>	<b>21,07,244</b>	<b>4,92,219</b>	<b>7,05,210</b>	<b>41,911</b>	<b>42,183</b>
<b>B.—ESTABLISHMENTS.</b>									
I.—Salaries . . . . .	1,03,176	2,33,092	4,27,851	2,92,113	13,25,314	3,05,271	7,94,198	48,533	31,305
II.—Travelling allowances . . . .	...	43,761	90,356	58,128	2,07,131	53,433	78,293	7,133	5,072
III.—Contingencies . . . . .	(b) 475	27,764	50,663	34,640	77,558	40,890	1,14,606	2,018	2,903
<b>Total B.—Establishments</b>	<b>1,03,651</b>	<b>3,04,617</b>	<b>5,38,869</b>	<b>3,84,770</b>	<b>16,10,003</b>	<b>3,99,100</b>	<b>9,87,097</b>	<b>57,684</b>	<b>39,280</b>
<b>GRAND TOTAL OF EXPENDITURE</b>	<b>1,04,183</b>	<b>5,83,881</b>	<b>12,22,435</b>	<b>8,51,627</b>	<b>37,17,247</b>	<b>8,91,849</b>	<b>17,63,307</b>	<b>99,595</b>	<b>81,413</b>
<b>SURPLUS</b>	...	<b>6,00,864</b>	<b>9,52,970</b>	<b>4,37,165</b>	<b>54,74,786</b>	<b>5,55,619</b>	<b>8,24,856</b>	<b>1,24,735</b>	<b>41,869</b>
<b>DEFICIT</b>	<b>96,994</b>	...	...	...	...	...	...	...	...

(a) Includes revenue derived

(b) Represents Expenditure

## DIX XXII.

33 to 37.]

Department in India for the financial year 1908-09.

Ajmer.	Baluchistan.	Andamans.	Forest Research Institute and College.	Forest Surveys (Imperial.)	Total Bengal Presidency.	Madras.	Bombay.	GRAND TOTAL.	BUDGET HEADS.
₹	₹	₹	₹	₹	₹	₹	₹	₹	
									REVENUE.
4,396	12,900	1,82,854	...	...	44,97,143	18,52,211	11,75,563	69,95,916	I.—Timber and other produce removed from the forests by Government agency.
22,165	1,729	8,628	...	...	1,28,83,177	23,22,429	22,91,732	1,70,53,838	II.—Timber and other produce removed from the forests by consumers or purchasers.
15	6	...	...	...	2,87,961	18,029	5,200	3,07,090	III.—Drift and waif wood and confiscated forest produce.
...	8,391	...	...	...	8,59,487	...	12,860	8,72,347	IV.—Revenue from forests not managed by Government.
1,038	279	11,036	4,680	...	4,81,758	1,94,850	1,02,002	7,78,103	V.—Miscellaneous.
27,615	23,605	2,02,018	4,660	...	1,79,78,524	38,90,919	35,87,855	2,54,56,799	TOTAL REVENUE.
									EXPENDITURE.
									A.—CONSERVANCY AND WORKS.
1,514	7,540	98,860	...	...	15,78,540	7,27,688	4,57,976	27,64,208	I.—Timber and other produce removed from the forests by Government agency.
235	...	...	...	...	3,75,274	1,17,512	69,919	5,62,705	II.—Timber and other produce removed from the forests by consumers or purchasers.
1	...	...	...	...	1,31,144	2,009	303	1,38,516	III.—Drift and waif wood and confiscated forest produce.
...	262	...	...	...	32,982	...	...	32,982	IV.—Revenue from forests not managed by Government.
...	...	...	...	...	8,79,434	15,521	26,595	4,21,556	V.—Rent of leased forests and payments to shore-holders in forests managed by Government.
266	109	83,937	11,416	...	2,93,370	1,53,480	25,579	4,77,429	VI.—Livestock, stores, tools and plant.
2,551	3,519	4,864	16,805	...	18,81,231	2,17,757	1,36,868	14,35,906	VII.—Communications and buildings.
1,441	185	7,031	...	89,128	11,27,675	4,87,128	1,61,855	17,26,555	VIII.—Demarcation, improvement and extension of forests.
155	45	625	8,751	...	1,14,235	74,428	85,334	2,78,997	IX.—Miscellaneous.
6,203	11,900	1,44,617	36,562	89,128	51,18,781	17,45,579	9,61,429	78,28,789	Total A.—Conservancy and Works.
									B.—ESTABLISHMENT.
11,158	19,395	32,041	1,20,736	...	87,44,178	9,06,870	9,00,535	55,61,559	I.—Salaries.
1,865	3,897	3,973	11,028	...	5,33,278	1,66,466	1,23,555	8,37,303	II.—Travelling allowances.
1,174	1,334	407	14,805	...	3,68,653	84,346	55,344	5,08,373	III.—Contingencies.
12,713	24,626	30,184	1,46,629	...	46,46,189	11,71,688	10,79,444	68,97,255	Total B.—Establishments.
19,916	36,536	1,86,941	1,83,191	89,128	97,64,900	20,17,251	20,48,873	1,47,26,034	GRAND TOTAL OF EXPENDITURE.
7,689	...	21,077	...	...	82,18,624	9,73,658	15,43,488	1,07,30,785	SURPLUS.
...	18,281	...	1,78,511	89,128	...	...	...	...	DEFICIT.

## Revenue, Expenditure and Surplus of the Forest Department throughout

## (I) REVI

PROVINCE.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1900-01.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
Imperial*	R 26,571	R 14,708	R 4,186	R 4,817	R 4,017	R 4,752	R 6,370	R 6,653	R 5,219	R 2,680	R 4,000	R 2,000	R 4,100
Bengal	5,71,152	5,07,432	633,634	6,57,774	6,76,007	7,23,718	7,27,302	7,82,553	7,44,880	8,01,610	7,85,070	0,18,710	12,70,830
United Provinces	15,72,319	14,61,495	15,73,556	12,47,454	14,62,802	17,14,153	16,37,879	17,31,514	15,52,549	17,00,869	16,53,250	16,01,340	14,44,820
Punjab	7,49,382	8,50,410	11,27,277	7,66,036	10,45,708	9,21,713	8,34,270	10,20,071	8,12,000	9,12,300	10,22,430	10,14,500	11,07,720
Burma	16,70,882	20,23,659	21,06,741	25,15,773	41,63,233	49,49,769	43,21,008	41,85,414	56,00,000	57,83,100	54,20,780	56,05,820	63,78,950
Eastern Bengal and Assam.	1,80,314	1,66,656	12,01,111	2,67,312	3,03,822	3,79,100	3,56,730	3,36,129	3,62,830	4,83,500	4,35,000	4,25,030	4,26,440
Central Provinces and Berar	13,25,321	13,57,370	12,84,322	15,00,412	15,88,382	15,06,722	17,00,570	18,71,055	16,61,870	16,17,280	14,82,000	14,81,220	12,01,140
Coorg	1,13,233	89,380	69,291	1,27,028	1,26,183	92,753	1,25,501	1,82,027	1,89,000	1,73,700	1,53,000	1,35,250	93,000
North-West Frontier Province	...	...	...	...	...	...	...	...	...	...	...	...	...
Ajmer	10,456	9,687	11,274	14,233	13,574	11,502	15,700	19,770	14,000	14,000	12,840	15,640	12,370
Baluchistan	6,089	14,002	14,081	14,063	5,003	12,837	15,734	20,000	19,000	20,700	16,500	14,800	15,400
Andamans	22,212	23,014	31,870	1,04,002	1,06,075	1,62,195	1,53,835	2,72,338	3,60,400	4,41,700	1,14,500	1,22,120	3,62,370
Imperial Forest College	73	273	415	777	440	1,237	1,104	1,703	1,800	1,900	2,700	4,310	2,650
Forest Surveys (Imperial)	234	207	211	40	215	220	2,104	257	500	2,400	60	510	400
Total	62,18,412	66,40,402	71,18,800	72,40,791	85,33,253	1,06,08,549	83,63,597	1,04,23,145	1,14,97,500	1,19,71,100	1,14,44,800	1,14,52,140	1,25,20,470
Madras	11,66,816	11,68,650	12,46,911	13,74,900	15,15,000	15,57,637	17,05,400	16,94,210	15,77,210	19,47,120	18,94,000	21,10,570	23,08,830
Bombay	27,74,842	30,66,220	30,32,670	30,32,577	28,50,130	31,37,036	32,63,220	32,81,019	33,00,559	37,04,330	37,50,000	35,30,070	30,22,770
GRAND TOTAL	1,01,80,170	1,12,65,315	1,13,93,480	1,16,18,223	1,38,93,457	1,53,03,572	1,42,67,135	1,54,17,610	1,63,44,549	1,77,13,000	1,67,83,600	1,72,97,200	1,76,56,510

## (II) EXPEN

Imperial*	55,200	62,215	62,229	78,626	82,109	81,311	85,418	63,765	1,07,270	80,640	81,350	67,410	75,000
Bengal	4,11,915	3,70,229	4,22,761	3,60,028	3,76,270	3,63,150	4,14,004	4,22,000	3,81,610	4,01,040	3,97,200	4,66,070	6,80,040
United Provinces	10,20,101	9,74,519	9,10,580	8,30,718	8,44,544	8,03,151	9,10,105	9,53,211	8,03,540	9,25,310	9,42,800	9,66,340	10,66,340
Punjab	5,58,070	6,75,463	7,16,510	5,63,625	6,77,912	6,53,635	6,53,041	6,40,775	6,56,270	6,82,430	7,22,120	6,78,420	7,22,300
Burma	12,12,233	11,50,932	10,78,018	11,53,516	20,17,073	16,00,644	13,63,702	16,00,000	18,65,000	18,00,000	19,33,000	22,22,000	22,22,000
Eastern Bengal and Assam	1,97,000	2,11,454	2,12,227	2,26,692	2,00,005	2,57,120	2,43,150	2,67,525	2,64,000	2,63,200	2,72,010	2,85,140	2,82,010
Central Provinces and Berar	6,63,274	6,67,610	7,16,409	7,78,002	8,02,804	8,79,455	9,04,415	10,02,121	10,00,000	11,25,410	12,27,700	11,97,500	11,92,800
Coorg	76,951	65,670	74,058	72,000	50,175	72,400	65,811	86,000	70,000	62,800	66,140	53,810	71,500
North-West Frontier Province	...	...	...	...	...	...	...	...	...	...	...	...	...
Ajmer	16,316	16,400	20,744	18,857	15,076	12,701	12,700	13,000	15,000	15,000	14,000	15,700	22,000
Baluchistan	13,266	15,789	17,836	17,733	15,204	17,000	23,450	20,400	25,000	33,700	40,010	41,770	23,700
Andamans	22,700	37,035	25,700	62,070	57,006	94,973	1,30,000	1,70,000	2,31,210	2,44,560	1,22,760	1,02,000	3,16,000
Imperial Forest College	22,568	24,200	30,831	33,120	32,001	29,646	35,191	44,247	50,400	63,500	65,000	67,000	67,300
Forest Surveys (Imperial)	19,623	19,180	28,348	32,608	22,104	21,168	24,301	26,622	22,100	27,900	27,840	29,000	31,570
Total	43,51,282	42,97,118	43,49,860	43,75,110	52,15,000	50,80,500	49,46,325	54,28,471	56,70,870	59,63,000	59,10,000	59,28,010	65,41,830
Madras	8,96,505	8,97,072	11,53,122	11,20,212	12,20,704	11,61,237	12,46,913	12,84,524	13,30,000	13,62,770	13,66,500	14,45,010	15,34,000
Bombay	17,78,720	18,39,461	19,52,010	19,44,005	16,03,002	17,70,071	18,00,000	19,31,457	20,71,940	20,67,000	19,58,000	19,02,160	19,02,160
GRAND TOTAL	70,26,510	70,74,551	74,55,592	74,49,305	81,29,701	80,12,518	80,03,125	86,04,182	87,06,230	89,49,700	89,73,000	89,32,610	1,00,45,180

## (III) SUR

Imperial*	-83,722	-73,537	-82,113	-73,779	-82,182	-76,553	-70,914	-59,100	-1,02,000	-78,100	-79,970	-77,720	-71,850
Bengal	1,50,227	2,27,033	2,30,833	2,67,430	3,00,697	3,70,568	3,13,368	3,06,022	3,63,270	3,97,570	3,98,280	4,52,640	6,80,810
United Provinces	5,52,212	4,86,976	6,53,976	4,16,700	6,18,258	7,51,008	7,18,084	7,73,205	7,24,000	7,46,840	7,21,940	6,58,460	5,38,430
Punjab	1,01,282	1,74,996	4,10,707	1,09,024	4,51,883	2,75,858	1,81,328	3,70,790	1,56,300	2,76,870	3,10,310	3,36,000	3,84,400
Burma	4,58,749	8,72,907	10,28,728	13,61,927	21,72,160	34,34,142	29,33,170	24,56,434	38,55,000	39,22,000	35,18,100	37,62,200	42,50,100
Eastern Bengal and Assam	-17,285	-14,838	-276	10,240	93,971	1,22,880	42,941	68,004	1,18,760	2,20,280	1,63,000	1,38,800	1,54,300
Central Provinces and Berar	6,42,074	7,09,762	5,67,853	7,21,610	7,25,518	7,17,004	7,80,000	8,68,804	5,81,240	6,04,840	2,54,300	2,95,400	68,280
Coorg	36,282	28,600	25,203	54,399	56,008	20,233	69,743	66,037	1,07,500	86,000	66,000	49,310	21,570
North-West Frontier Province	...	...	...	...	...	...	...	...	...	...	...	...	...
Ajmer	-5,800	-6,772	-3,470	-4,604	-2,102	-1,100	2,546	5,812	-110	-1,280	-2,060	-90	9,640
Baluchistan	-7,171	-837	-3,755	-3,600	-10,300	-4,000	-18,720	-9,888	-36,500	-43,000	-24,610	-26,800	-14,300
Andamans	-547	-13,071	6,101	41,363	48,780	67,220	28,274	92,420	1,29,280	1,97,240	-8,280	20,100	45,770
Imperial Forest College	-23,485	-23,960	-30,416	-32,389	-32,512	-28,409	-34,007	-42,559	-48,420	-63,540	-63,100	-60,640	-64,500
Forest Surveys (Imperial)	-19,589	-18,978	-28,107	-32,623	-21,649	-20,000	-22,220	-26,625	-21,640	-27,600	-28,700	-29,440	-31,570
Total	18,07,130	23,43,291	27,69,300	28,65,012	43,12,250	55,27,658	49,37,182	49,99,674	58,26,710	60,65,500	62,25,800	55,22,500	59,78,780
Madras	2,70,411	2,00,678	3,87,780	2,45,708	2,45,212	3,06,390	3,68,962	3,68,962	2,46,800	5,84,410	5,07,890	6,04,000	7,69,000
Bombay	9,06,110	15,86,825	-10,79,768	10,88,572	11,56,228	13,67,005	14,18,338	13,63,192	13,68,580	17,22,110	15,78,260	15,78,260	10,63,550
GRAND TOTAL	31,63,660	41,30,794	39,42,694	41,59,822	57,68,690	72,91,054	69,04,010	67,22,828	73,36,110	83,72,880	73,15,500	77,66,770	1,11,800

\* Includes pay of Inspector General of Forests, certain home

## DIX XXII

33 to 39.]

India during the 25 (financial) years from 1884-85 to 1908-09.

## NUE.

1897-98.	1898-99.	1899-1900.	1900-01.	1901-02.	1902-03.	1903-04.	1904-05.	1905-06.	1906-07.	1907-08.	1908-09.	PROVINCE.
19,130	17,540	6,090	2,460	3,481	3,659	7,455	3,768	7,255	...	7,866	8,186	Imperial.*
11,99,280	9,72,310	11,38,910	12,33,330	12,92,237	12,56,247	10,65,523	11,67,472	11,18,542	10,65,858	11,97,650	11,84,845	Bengal.
13,66,670	15,68,040	16,14,740	15,65,463	17,15,508	20,25,324	22,80,445	23,87,318	24,33,428	25,02,654	24,09,745	21,76,410	United Provinces.
10,68,470	14,74,430	14,00,770	13,50,842	14,47,558	15,86,408	17,17,797	18,74,443	17,41,653	16,05,284	14,57,449	12,83,792	Punjab.
72,15,260	83,50,890	78,12,050	80,54,444	58,74,938	67,99,053	82,68,535	89,58,758	1,03,29,893	98,12,519	85,63,889	91,82,082	Burma.
2,64,920	3,86,180	5,68,100	5,69,521	5,12,063	5,60,200	6,75,732	8,15,677	11,06,090	19,20,592	14,30,447	14,46,368	Eastern Bengal and Assam.
11,80,440	14,31,910	12,97,490	12,65,614	15,79,116	16,64,428	19,68,032	20,13,459	24,49,131	24,01,159	22,80,129	20,76,162	Central Provs. and Berar.
1,30,910	1,55,070	1,62,410	1,27,596	1,70,232	1,90,730	21,031	1,83,687	2,45,419	2,35,909	2,74,756	2,24,330	Coorg.
...	...	...	...	12,012	1,01,123	1,01,633	99,697	1,26,529	1,43,214	2,26,490	1,22,782	N.-W. Frontier Province.
15,540	14,420	10,270	10,646	9,865	9,726	12,684	17,297	15,002	18,385	29,864	27,615	Ajmer.
15,040	14,020	17,060	18,956	14,712	19,336	18,388	22,555	21,481	21,195	24,920	23,305	Baluchistan.
34,710	2,29,460	2,60,600	2,77,886	2,66,003	2,26,035	4,27,381	6,22,796	5,82,511	9,07,027	2,91,822	2,09,018	Andamans.
2,880	2,260	3,210	3,697	3,545	3,252	3,033	3,557	3,080	4,578	7,0137	4,980	Imperial Forest College.
80	230	...	227	473	3,034	451	...	...	...	...	...	Forest Surveys (Imperial).
1,30,42,340	1,49,32,850	1,42,92,120	1,41,68,794	1,29,00,556	1,45,28,565	1,68,07,481	1,81,80,176	2,02,21,894	1,97,78,336	1,83,22,972	1,79,78,524	Total.
21,36,490	21,10,520	23,02,290	23,40,170	25,43,430	26,13,819	26,57,127	28,29,219	29,67,804	32,90,669	38,53,580	38,90,810	Madras.
26,18,680	22,85,150	24,15,200	29,61,529	23,79,729	23,29,156	27,51,539	30,20,558	34,84,993	34,22,481	36,49,177	35,87,756	Bombay.
1,77,95,490	1,90,33,520	1,90,09,610	1,97,70,493	1,78,23,715	1,94,71,540	2,22,16,774	2,40,29,850	2,66,74,589	2,64,91,486	2,58,62,979	2,64,59,740	GRAND TOTAL.

## DITURE.

61,300	65,460	66,550	83,578	79,589	85,017	69,215	83,058	83,767	95,472	1,00,204	1,04,183	Imperial.*
5,53,440	4,86,320	5,45,210	5,70,806	6,57,131	6,38,014	7,03,508	6,88,589	5,83,509	6,33,286	7,13,394	5,83,801	Bengal.
9,17,850	9,72,030	9,42,380	9,63,439	10,08,739	10,13,069	10,81,438	12,91,813	14,05,182	13,06,651	11,94,013	12,22,242	United Provinces.
7,71,940	9,55,340	12,11,460	8,67,343	9,38,335	9,60,095	11,59,415	10,12,354	12,63,693	11,44,403	11,76,806	9,51,627	Punjab.
21,98,610	24,26,190	24,47,410	25,54,717	28,46,457	28,90,263	32,52,494	34,46,824	39,38,063	36,59,753	35,51,532	37,17,247	Burma.
2,88,830	3,05,260	3,97,140	3,47,972	3,29,112	3,27,498	4,25,864	5,03,656	5,93,910	7,07,860	9,00,373	8,91,319	Eastern Bengal and Assam.
11,65,490	11,09,400	12,75,820	11,65,866	12,00,904	12,57,288	12,80,966	13,20,615	13,07,153	13,42,879	15,83,407	17,53,207	Central Provs. and Berar.
87,020	80,100	74,220	70,005	82,333	89,437	92,101	83,820	85,749	1,02,855	1,04,919	99,595	Coorg.
...	...	...	...	19,510	54,066	60,693	74,958	95,258	93,650	89,400	81,213	N.-W. Frontier Province.
14,670	15,300	15,250	16,782	15,927	16,377	16,680	15,611	17,121	16,716	19,168	19,916	Ajmer.
27,330	27,760	28,680	29,254	24,480	23,240	21,697	24,672	25,131	26,822	31,258	36,586	Baluchistan.
2,47,240	1,38,490	1,40,940	1,40,187	2,04,667	2,01,702	2,66,121	3,42,431	3,85,085	2,85,136	2,29,207	1,80,911	Andamans.
60,820	63,370	73,550	71,238	76,200	66,238	59,339	61,424	80,669	1,37,486	1,58,938	1,83,181	Imperial Forest College.
83,850	33,970	38,980	33,891	33,730	33,855	33,833	28,229	20,444	30,389	27,060	39,128	Forest Surveys (Imperial).
65,49,690	66,00,000	72,42,720	70,36,028	78,17,154	77,37,333	86,40,128	90,77,854	98,65,928	85,82,865	87,76,619	87,63,900	Total.
15,72,650	15,94,670	16,58,530	17,15,431	17,09,554	18,35,452	17,50,890	18,85,068	22,66,602	24,80,960	27,80,857	29,17,261	Madras.
20,73,190	18,39,250	21,23,430	24,09,581	17,19,580	16,79,441	17,75,937	19,03,894	21,26,052	19,90,183	19,55,427	20,43,972	Bombay.
1,01,95,730	1,06,33,820	1,10,24,680	1,11,60,040	1,07,46,388	1,12,49,331	1,21,66,999	1,29,67,856	1,42,68,621	1,40,63,799	1,45,12,933	1,47,26,034	GRAND TOTAL.

## PLUS.

-65,170	-67,820	-90,460	-91,116	-76,058	-81,359	-81,880	-79,290	-78,512	-95,472	-92,530	-95,991	Imperial.*
5,35,840	4,85,980	5,93,700	6,02,533	6,25,105	6,18,232	3,02,015	4,78,883	5,25,033	4,32,473	4,04,256	6,00,094	Bengal.
4,88,820	5,93,990	6,72,380	6,02,024	7,06,763	10,11,326	11,89,003	10,05,735	10,28,246	11,98,919	12,15,732	8,52,970	United Provinces.
2,96,530	5,19,010	1,89,210	4,63,499	5,09,223	6,20,213	5,61,382	8,62,089	5,17,989	4,60,881	2,90,793	4,37,165	Punjab.
50,18,650	59,24,310	53,64,810	53,89,727	82,27,491	38,43,790	49,16,131	55,12,932	63,81,806	61,52,760	51,12,457	54,74,785	Burma.
95,990	92,820	2,10,060	2,01,548	1,88,851	2,52,701	2,50,248	3,12,021	5,12,180	6,12,732	9,30,074	5,55,019	Eastern Bengal and Assam.
14,910	3,25,640	21,070	93,748	3,78,212	4,27,140	7,17,068	6,82,844	11,41,979	10,58,281	7,06,721	7,69,721	Central Provs. and Berar.
42,890	74,970	88,190	66,691	37,809	1,01,203	1,21,849	1,09,297	1,40,671	1,33,054	1,68,937	1,23,785	Coorg.
...	...	...	...	8,498	47,038	41,230	19,033	53,271	80,564	1,50,090	41,369	N.-W. Frontier Province.
870	-1,880	-5,080	-6,136	-4,062	-6,631	-2,795	1,856	-2,129	-1,620	11,676	7,689	Ajmer.
-12,230	-12,940	-11,610	-12,288	-9,768	-3,904	-3,234	-2,117	-4,262	-5,127	-6,429	-18,221	Baluchistan.
1,86,870	01,060	1,19,600	1,37,749	62,289	44,333	1,60,280	2,78,335	2,46,526	3,11,891	62,555	21,077	Andamans.
-58,030	-81,010	-70,240	-67,541	-72,740	-63,088	-56,301	-57,867	-77,588	-1,32,907	-1,51,901	-1,79,511	Imperial Forest College.
-33,720	-33,980	-33,560	-33,064	-33,257	-20,951	-33,504	-28,229	-30,044	-30,389	-27,060	-29,128	Forest Surveys (Imperial).
64,92,650	80,42,850	70,49,400	73,32,766	65,80,424	67,91,227	81,67,355	81,02,222	1,03,50,170	1,01,85,380	85,46,322	82,13,524	Total.
5,63,040	5,15,850	6,48,760	6,24,739	8,83,676	7,79,257	9,06,707	8,43,118	9,07,002	8,10,009	11,12,973	9,73,658	Madras.
5,43,470	4,55,900	2,90,776	5,58,948	6,00,049	5,22,715	9,73,802	11,18,754	13,58,900	14,32,288	16,00,750	15,43,483	Bombay.
75,99,700	80,04,600	79,84,930	86,10,453	70,77,327	82,22,268	1,00,49,754	1,10,62,094	1,24,18,072	1,24,27,687	1,13,50,046	1,07,80,765	GRAND TOTAL.

charges, and nondistributable and petty local items and revenue and charges on account of Indore Agency.

## APPENDIX XXIV.

[Vide paragraph 32.]

## Exports of Forest Produce.

Articles of Forest Produce.	QUANTITY IN TONS OF 20 CWT. IN THE CASE OF TEAK CUBIC TONS.		VALUATION AT PORT OF SHIPMENT IN 1908-09.	
	Average of 5 years 1903-04 to 1907-08.	In 1908-09.	Total.	Per ton.
1	2	3	4	5
			R	R
Caoutchouc, raw . . . . .	191	98	3,10,039	3,255
{ Button . . . . .	2,032	1,571	23,38,005	1,485
Lac { Shell . . . . .	10,732	16,148	2,46,51,307	1,527
{ Stick, seed and other kinds . . . . .	1,058	1,322	9,62,650	728
Sandal, Ebony and other ornamental woods . . . . .	(a)	(a)	10,72,105	...
Cutch and gambier . . . . .	4,198	3,142	9,26,042	295
Myrabolams . . . . .	62,791	73,342	57,20,302	78
Teak . . . . .	51,467	27,220	40,19,657	148
Cardamoms . . . . .	106	116	3,04,163	2,622
Total in 1908-09 . . . . .	...	...	4,03,08,470	...
,, 1907-08 . . . . .	...	...	5,68,69,672	...

(a) Quantity (whether by weight or measurement) not recorded.

